Requester's Full Name: DAWN GARRETT Examiner # : 76107 Date: 8/3/2004
Art Unit: 1774 Phone Number 2-1523 Serial Number: 10/642,697
Mail Box and Bldg/Room Location: Remsen 5C75 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Film for Organic EL Device And An Organic Device Using the Film

Inventors (please provide full names):

YUICHI SAWAI, TOMOJI OISHI, YOSHIYUKI KANEKO, SUKEKAZU ARATANI

Earliest Priority Filing Date: 3/5/2001 (JP 2001-060446)

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

US 20040053070 6638645

Please search the hybrid film comprising an organic moiety and inorganic skeletal moiety of cl. 1

Also specifically search:

hybrid film of cl. 2 comprising polychlorofluoroethylene having a siloxane group

AND

hybrid film of cl. 3 comprising fluorine group and siloxane group

Thank you.

****

STAFF USE ONLY

Searcher: John Calve		NA Sequence (#)		STN	# 301.68
Searcher Phone #:		AA Sequence (#)		Dialog	
Searcher Location:		Structure (#)		Questel/Orbit	
Date Searcher Picked Up:	8/12/04	Bibliographic	✓	Dr.Link	
Date Completed:	8/12/04	Litigation		Lexis/Nexis	

Type of Search — Vendors and cost where applicable

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=> file hca

=> d his

     (FILE 'HOME' ENTERED AT 08:35:33 ON 12 AUG 2004)

     FILE 'HCA' ENTERED AT 08:36:37 ON 12 AUG 2004
                E US20040053070/PN
L1            1 S E3
                SEL L1 RN

     FILE 'REGISTRY' ENTERED AT 08:37:38 ON 12 AUG 2004
L2            9 S E1-E9
                E F/PCT
L3         9720 S E5
L4         1162 S L3 AND 1-10/SI

     FILE 'HCA' ENTERED AT 08:39:27 ON 12 AUG 2004
L5        73235 S L3
L6          398 S  L4
L7       604372 S EL OR E(W)L OR ELECTROLUM!N? OR ORGANOLUM!N? OR (ELECTRO OR O
L8       110655 S EL OR E(W)L OR ELECTROLUM!N? OR ORGANOLUM!N? OR (ELECTRO OR O
L9            2 S L6 AND L8
L10         675 S L5 AND L8
L11      719365 S ELECTRODE? OR ANODE? OR CATHODE?
L12         136 S L10 AND L11
L13             QUE FILM? OR THINFILM? OR LAYER? OR OVERLAY? OR OVERLAID? OR LA
L14        4283 S L13(2N)HYBRID?
L15           0 S L10 AND L14
L16          62 S L8 AND L14
L17          18 S L14(2N)L8
L18           4 S L17 AND L11
L19       91081 S SILOXANE?
L20         355 S FLUROPOLYMER### OR CHLOROPOLYMER### OR HALOPOLYMER####
L21           0 S L17 AND L19
L22           0 S L17 AND L20
L23     1137470 S ORGANIC? OR INORGANIC?
L24          13 S L17 AND L23
L25        4047 S ITO#(2N)L11
L26       17078 S ITO#
L27           8 S L16 AND L26
L28           0 S L17 AND L26
L29           5 S L16 AND L25
L30          26 S L17 OR L18 OR L27 OR L29
L31          13 S L30 AND 1907-2001/PY,PRY
L32          35 S L16 AND 1907-2001/PY,PRY
L33          17 S L30 AND 1907-2002/PY,PRY
L34          22 S L32 NOT L33
L35           9 S L30 NOT L33

     FILE 'LCA' ENTERED AT 08:49:52 ON 12 AUG 2004

     FILE 'WPIX' ENTERED AT 08:51:00 ON 12 AUG 2004
L36      227157 S L8 OR EL
L37        1907 S L13(2N)HYBRID?
L38          33 S L36 AND L37
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L39     1900006 S 11 OR ELECTRODE
L40        4224 S ITO#
L41          10 S L38 AND L39
L42           1 S L38 AND L40
L43          17 S L38 AND 2003-2004/PY,PRY
L44          16 S L38 NOT L43
L45          10 S L41 OR L42
L46           3 S L44 AND L45
L47          13 S L44 NOT L46
L48          13 S L47 AND L36

     FILE 'JAPIO' ENTERED AT 08:55:55 ON 12 AUG 2004
L49      205243 S L8 OR EL
L50         770 S L13(2N)HYBRID?
L51          10 S L49 AND L50
L53        6585 S ITO#

     FILE 'WPIX' ENTERED AT 08:58:02 ON 12 AUG 2004
L54      620331 S L11 OR ELECTRODE

     FILE 'JAPIO' ENTERED AT 09:00:38 ON 12 AUG 2004
L55      473252 S L11
L56           0 S L51 AND L53
L57           4 S L51 AND L55
L58          10 S L51 OR L57

     FILE 'COMPENDEX, INSPEC' ENTERED AT 09:02:54 ON 12 AUG 2004
L59      121252 S L8 OR EL
L60        5737 S L13(2N)HYBRID?
L61          73 S L59 AND L60
L62      314474 S L11 OR ELECTRODE
L63       12095 S ITO#
L64      117501 S LED#
L65      222332 S L64 OR L59
L66         130 S L65 AND L60
L67           3 S L63 AND L66
L68          14 S L62 AND L66
L69     1285639 S POLYMER? OR ORGANIC? OR INORGANIC? OR OXIDE?
L70          41 S L66 AND L69
L71          13 S L70 AND OXIDE?
L72          21 S L67 OR L68 OR L71

     FILE 'HCA, WPIX, JAPIO, COMPENDEX, INSPEC' ENTERED AT 09:10:16 ON 12 AUG
     2004
L74          83 DUP REM L33 L34 L35 L46 L48 L58 L72 (12 DUPLICATES REMOVED)
                SET MSTEPS ON
L75          17 S L74
L76          22 S L74
L77           9 S L74
L78          48 FILE HCA
L79           3 S L74
L80          12 S L74
L81          15 FILE WPIX
L82           9 S L74
L83           9 FILE JAPIO
L84           7 S L74
L85           7 FILE COMPENDEX
L86           4 S L74
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L87           4 FILE INSPEC
     TOTAL FOR ALL FILES
L88          83 S L74 AND (L8 OR LED)

     FILE 'LCA' ENTERED AT 09:12:50 ON 12 AUG 2004

     FILE 'HCA' ENTERED AT 09:13:18 ON 12 AUG 2004

     FILE 'WPIX' ENTERED AT 09:14:40 ON 12 AUG 2004

     FILE 'JAPIO' ENTERED AT 09:16:24 ON 12 AUG 2004

     FILE 'COMPENDEX, INSPEC' ENTERED AT 09:19:24 ON 12 AUG 2004

     FILE 'HCA' ENTERED AT 09:23:30 ON 12 AUG 2004
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FILE 'HCA' ENTERED AT 09:13:18 ON 12 AUG 2004

FILE COVERS 1907 - 5 Aug 2004 VOL 141 ISS 7
FILE LAST UPDATED: 5 Aug 2004 (20040805/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d L33 1-17 cbib abs hitind hitrn

L33 ANSWER 1 OF 17 HCA COPYRIGHT 2004 ACS on STN

140:243688 Transparent electroconductive films, flexible display panels, touch panels, and organic-inorganic **hybrid** polymer **films** therefor. Okubo, Yasushi; Takagi, Takahiro; Kurachi, Ikuo (Konica Minolta Holdings Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2004075951 A2 20040311, 33 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-241869 20020822.

AB The **hybrid films** comprise cellulase esters and metal compds. ApMqBr (M = metal; A, B = unhydrolyzable and hydrolyzable substituent, resp.) undergoing hydrolysis to give 0.1-40% (to the film) ApMqOr/2. The cellulose esters may satisfy 1.0< X + Y <2.5 and 0< X <2.5 (X, Y = degree of acetylation and that of other esterification, resp.). The transparent electroconductive **films** comprise the **hybrid films** having moisture-barrier metal oxide (or nitride) layers and transparent elec. conductive layers. Flexible transparent electrode substrates with high Tg and low birefringence are

afforded as above.
IC ICM C08L001-14
ICS B32B007-02; B32B009-00; B32B023-20; C08J005-18; C08L083-04; C08L085-00; G02B001-10; H01B005-14; H01H001-02
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76
ST transparent **ITO** substrate cellulose silicate hybrid; flexible zirconate aluminate hybrid cellulose LCD substrate; LED touch panel substrate cellulose inorg hybrid
IT **Electroluminescent** devices
(displays, organic; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT Transparent films
(elec. conductive; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT **Luminescent** screens
(**electroluminescent, organic**; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT Electric conductors
(films, transparent; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT Nitrides
Oxides (inorganic), preparation
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(moisture-barrier layers; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT Liquid crystal displays
Nanocomposites
(organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT Silsesquioxanes
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silicate-, nanocomposites; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT Silicates, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silsesquioxane-, nanocomposites; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT Optical imaging devices
(touch panels; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)
IT 9004-39-1, Cellulose acetate propionate
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(CAP, substrates; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)

IT 9035-69-2, Diacetyl cellulose
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(Daicel LM 80, Daicel L 50, nanocomposites; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)

IT 9012-09-3P, Triacetyl cellulose
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(Daicel LT 55, substrates; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)

IT 7631-86-9P, Silica, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(moisture-barrier layers; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)

IT 2269-22-9P 11099-06-2P, Ethyl silicate 39317-21-0P, Zirconium tetrapropoxide homopolymer 53339-36-9P, Titanium tetraisopropoxide homopolymer 88029-70-3P, Methyltriethoxysilane-tetraethoxysilane copolymer
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(nanocomposites; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)

IT 50926-11-9P, Indium tin oxide
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(transparent electrode layers; organic-inorg. nanocomposite films with prescribed amount of hydrolyzed metal alkoxides for flexible **ITO** substrates of flat panel displays)

L33 ANSWER 2 OF 17 HCA COPYRIGHT 2004 ACS on STN
139:108335 Hybrid electroluminescent devices with atomic layer deposited thin films on a screen printed dielectric. Stuyven, Gert; De Visschere, Patrick; Neyts, Kristiaan; Hikavyy, Andriy (Electronics and Information Systems Department, Ghent University, Ghent, B-9000, Belg.). Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers, 41(9), 5702-5705 (English) **2002**. CODEN: JAPNDE. Publisher: Japan Society of Applied Physics.

AB A hybrid electroluminescent (EL) device structure was developed, consisting of a screen printed Pt/Ag conductor and high-k $BaTiO_3$ dielec., on which a phosphor, a thin insulator and a transparent conductor were deposited by atomic layer deposition (ALD). The use of the hybrid EL structure results in more than a doubling of brightness compared with the thin-film EL alternative structure. While hybrid EL devices with ALD-grown thin-film stack deposited directly on top of a rough dielec. yield a uniform light emission, the aging stability is determined largely by the occurrence of local breakdown events due to elec. field inhomogeneities originating from the combination of the rough $BaTiO_3$/ZnS:Mn interface and the high dielec. constant of $BaTiO_3$. Nevertheless, lifetimes of more than 600 h at 1 kHz could be obtained.

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)
Section cross-reference(s): 66, 76
IT Atomic **layer** epitaxy
Screen printing
Semiconductor device fabrication
(**hybrid electroluminescent** devices with atomic layer deposited thin films on screen printed dielec.)
IT 7440-06-4, Platinum, uses 7440-22-4, Silver, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(contact **layer; hybrid electroluminescent** devices with atomic layer deposited thin films on screen printed dielec.)

L33 ANSWER 3 OF 17 HCA COPYRIGHT 2004 ACS on STN
138:14200 Synthesis and Characteristics of Poly[N,N'-diphenyl-N,N'-bis(4-aminobiphenyl)-(1,1'-biphenyl)-4,4'-diamine pyromellitimide] as a Hole Injecting and Transporting **Layer** for **Hybrid** Organic **Light-Emitting** Device. Kim, Youngkyoo; Han, Kijong; Ha, Chang-Sik (New Electroluminescent Systems Center, Institute for Advanced Engineering (IAE), Kyounggi-Do, 449-860, S. Korea). Macromolecules, 35(23), 8759-8767 (English) **2002**. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.
AB A hole injection and transport layer polymer, poly[N,N'-diphenyl-N,N'-bis(4-aminobiphenyl)-(1,1'-biphenyl)-4,4'-diamine pyromellitimide] (PMDA-DBABBD PI), was prepared by thermal imidization of the poly(amic acid) (PAA), which in term was prepared by polymerization of pyromellitic dianhydride with DBABBD. The DBABBD was prepared by reduction from N,N'-diphenyl-N,N'-bis(4-nitrobiphenyl)-(1,1'-biphenyl)-4,4'-diamine, via palladium-catalyzed amination. The polyimide (PI) was characterized by 1H NMR, 13C NMR, FTIR, HR GC-MS, EA, and DSC methods. The characteristics of the PAA and PI thin films were studied by XPS and impedance spectroscopy. The PAA and PI thin films were assembled into hybrid organic electroluminescent device structures (HOLED) to examine the performance as hole injection and transport layer. The PI thin film having glass transition temperature of 200° showed stable characteristics suitable for application in HOLED whereas PAA thin films were unstable. The power efficiency of HOLED with PI thin film was 0.23 cd/A at 4000 cd/m2.
CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73
IT 7429-90-5, Aluminum, uses 12798-95-7
RL: DEV (Device component use); USES (Uses)
(**electrode** layer; preparation and NMR spectra and optical properties of poly[N,N'-di-Ph-N,N'-bis(aminobiphenyl)-(biphenyl)diamine pyromellitimide] as hole injection layer in hybrid organic LEDs)
IT 50926-11-9, Indium-tin oxide
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(substrate and **electrode** layer; preparation and NMR spectra and optical properties of poly[N,N'-di-Ph-N,N'-bis(aminobiphenyl)-(biphenyl)diamine pyromellitimide] as hole injection layer in hybrid organic LEDs)

L33 ANSWER 4 OF 17 HCA COPYRIGHT 2004 ACS on STN
137:223924 Environmental barrier materials for encapsulated organic **light-emitting** devices. Graff, Gordon L.; Gross, Mark E.; Affinito, John D.; Shi, Ming-Kun; Hall, Michael G.; Mast, Eric S.; Walty, Robert; Rutherford, Nicole; Burrows, Paul E.; Martin, Peter M. (USA). U.S. Pat. Appl. Publ. US 2002125822 A1 **20020912**, 10 pp.,

Cont.-in-part of U.S. Ser. No. 427,138. (English). CODEN: USXXCO.
APPLICATION: US 2001-887605 20010622. PRIORITY: US 1998-212779 19981216;
US 1999-427138 19991025.

AB Encapsulated organic **light-emitting** devices are described which comprise a substrate; an organic **light-emitting** device adjacent to the substrate; and ≥1 first barrier stack adjacent to the organic **light-emitting** device comprising ≥1 first barrier layer and ≥1 first decoupling layer, where the ≥1 first barrier stack encapsulates the organic **light emitting** device. Encapsulated organic **light-emitting** device are also described which comprise ≥1 s barrier stack comprising ≥1 s barrier layer and ≥1 s decoupling layer; an organic **light-emitting** device adjacent to the ≥1 s barrier stack; and ≥1 first barrier stack adjacent to the organic **light-emitting** device comprising ≥1 first barrier layer and ≥1 first decoupling layer, where the ≥1 first barrier stack and the ≥1 s barrier stack encapsulate the organic **light-emitting** devices.

IC ICM H01J001-62

NCL 313506000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST environmental barrier org **light emitting** device packaging; barrier org LED encapsulation

IT Coating materials
(UV-absorbing, functional layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Coating materials
(anticorrosive, functional layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Coating materials
(antistatic, functional layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Cermets
(barrier layers; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Carbides
Metals, uses
Nitrides
Oxides (inorganic), uses
Oxynitrides
RL: DEV (Device component use); USES (Uses)
(barrier layers; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Polysiloxanes, uses
RL: DEV (Device component use); USES (Uses)
(carborane-, decoupling layers; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Silicates, uses
RL: DEV (Device component use); USES (Uses)
(decoupling layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Alkyd resins
Epoxy resins, uses
Phosphonitrile compounds
Polyamides, uses
Polyanilines

Polycarbonates, uses
Polycarbosilanes
Polyimides, uses
Polyolefins
Polyphosphazenes
Polysilanes
Polysiloxanes, uses
Silazanes
Siloxanes (nonpolymeric)
Urethanes
RL: DEV (Device component use); USES (Uses)
(decoupling layers; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Coating materials
(elec. conductive, functional layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT **Electroluminescent** devices
(encapsulation; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Electronic packages
Electronic packaging materials
(environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Packaging materials
(films, gas-impermeable; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Coating materials
(fire-resistant, functional layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Glass substrates
(flexible; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Adhesives
Antireflective films
(functional layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Polymers, uses
RL: DEV (Device component use); USES (Uses)
(metal-containing, decoupling layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Borides
RL: DEV (Device component use); USES (Uses)
(oxyborides, barrier layers; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(polyarylethers, decoupling layers; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Hybrid organic-inorganic materials
(polymer-silica **hybrid** decoupling **layers;**
environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Coating materials
(scratch-resistant, functional layer; environmental barrier materials for encapsulated organic **light-emitting** devices)

IT Carboranes
RL: DEV (Device component use); USES (Uses)
(siloxane-, decoupling layers; environmental barrier materials for

encapsulated organic **light-emitting** devices)
IT Polymers, uses
RL: DEV (Device component use); USES (Uses)
(substrate, decoupling layer; environmental barrier materials for encapsulated organic **light-emitting** devices)
IT Ceramics
Semiconductor materials
(substrate; environmental barrier materials for encapsulated organic **light-emitting** devices)
IT 409-21-2, Silicon carbide, uses 1312-43-2, Indium oxide 1332-29-2, Tin oxide 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 11105-01-4, Silicon nitride oxide 12033-89-5, Silicon nitride, uses 13463-67-7, Titania, uses 24304-00-5, Aluminum nitride 50926-11-9, **ITO**
RL: DEV (Device component use); USES (Uses)
(barrier layers; environmental barrier materials for encapsulated organic **light-emitting** devices)
IT 1313-96-8, Niobium oxide 1313-99-1, Nickel oxide, uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-35-8, Tungsten oxide, uses 1314-36-9, Yttrium oxide, uses 1314-61-0, Tantalum oxide 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-42-8, Boron, uses 7440-47-3, Chromium, uses 7440-58-6, Hafnium, uses 7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-74-6, Indium, uses 10043-11-5, Boron nitride, uses 11118-57-3, Chromium oxide 12055-23-1, Hafnium oxide 12069-32-8, Boron carbide 12070-12-1, Tungsten carbide 12633-97-5, Aluminum oxynitride 12705-37-2, Chromium nitride 12738-11-3, Nickel nitride 39301-25-2, Boron oxynitride 51845-89-7, Germanium nitride
RL: DEV (Device component use); USES (Uses)
(barrier; environmental barrier materials for encapsulated organic **light-emitting** devices)
IT 25038-76-0 71812-36-7, PET
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(barrier; environmental barrier materials for encapsulated organic **light-emitting** devices)
IT 78-79-5, Isoprene, uses 115-11-7, Isobutylene, uses 4026-23-7, Benzocyclobutadiene 9010-77-9, Ethylene-acrylic acid copolymer 24937-78-8, Ethylene vinyl acetate copolymer 25038-76-0D, Polynorbornene, compds. 25722-33-2, Parylene
RL: DEV (Device component use); USES (Uses)
(decoupling layers; environmental barrier materials for encapsulated organic **light-emitting** devices)
IT 12033-62-4, Tantalum nitride 12039-88-2, Tungsten disilicide 12045-63-5, Titanium diboride 12045-64-6, Zirconium diboride 12648-34-9, Niobium nitride 25583-20-4, Titanium nitride 25658-42-8, Zirconium nitride 25817-87-2, Hafnium nitride
RL: DEV (Device component use); USES (Uses)
(opaque cermet barrier; environmental barrier materials for encapsulated organic **light-emitting** devices)
IT 9003-29-6, Polybutylene
RL: DEV (Device component use); USES (Uses)
(polybutylenes decoupling layers; environmental barrier materials for encapsulated organic **light-emitting** devices)
IT 7440-21-3, Silicon, uses
RL: DEV (Device component use); USES (Uses)
(substrate; environmental barrier materials for encapsulated organic **light-emitting** devices)

L33 ANSWER 5 OF 17 HCA COPYRIGHT 2004 ACS on STN
136:190811 State of the art: luminescent films prepared by sol-gel process. Lin, Jun; Yu, Min; Pang, Mao-lin; Zhou, Yong-hui; Han, Xiu-mei; Zhang, Hong-jie (Changchun institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022, Peop. Rep. China). Faguang Xuebao, 22(4), 373-383 (English) **2001**. CODEN: FAXUEW. ISSN: 1000-7032. Publisher: Kexue Chubanshe.

AB A review. The basic processes, characterization methods, and current development and application situation for luminescent films fabricated by sol-gel method are considered. Classified by compns., the sol-gel derived luminescent films include inorg. **luminescent** films and **organic**/inorg. **hybrid luminescent films**, whose photoluminescent, cathodoluminescent, electroluminescent and field emission properties have been widely studied. Besides the silicate phosphor films which mainly employed alkoxysilanes as the main precursors for sol-gel transition, the authors also prepared other important phosphor films such as vanadates doped with rare earth ions by Pechini sol-gel process using inorg. salts as precursors, and realized the patterning of the phosphor films by soft lithog. (micro-molding in capillaries). Finally, the future development tendency for the luminescent films are forecasted.

CC 73-0 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74

L33 ANSWER 6 OF 17 HCA COPYRIGHT 2004 ACS on STN
136:141682 Organic-inorganic hybrid thin films as new optical materials. Matsukawa, Kimihiro; Matsuura, Yukihito; Inoue, Hiroshi; Naito, Hiroyoshi; Kanemitsu, Yoshihiko (Osaka Municipal Tech. Res. Inst., Japan). Kotai Butsuri, 37(1), 19-25 (Japanese) **2002**. CODEN: KOTBA2. ISSN: 0454-4544. Publisher: Agune Gijutsu Senta.

AB A review. The polysilane-silica hybrid thin films were prepared by sol-gel method using polysilane copolymers, and their optical properties have been studied. In addition to well-known properties of polysilanes, these hybrid thin films exhibited properties such as photoluminescence (PL), photo-degradation, refractive index change, PL linear polarization memory, and time-resolved photoluminescence. These hybrid thin films are unique optical materials and seemed the most likely candidate for a opto-electronic devices.

CC 73-0 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38

IT **Luminescence**
(time-resolved; **organic**-inorg. **hybrid** thin **films** as new optical materials in relation to)

L33 ANSWER 7 OF 17 HCA COPYRIGHT 2004 ACS on STN
135:20237 Synthesis and luminescence properties of organic-inorganic hybrid thin films doped with Eu(III). Li, Y. H.; Zhang, H. J.; Wang, S. B.; Meng, Q. G.; Li, H. R.; Chuai, X. H. (Key Laboratory of Rare Earth Chemistry and Physics, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022, Peop. Rep. China). Thin Solid Films, 385(1,2), 205-208 (English) **2001**. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier Science S.A..

AB Silica-based transparent organic-inorg. hybrid films were prepared by the sol-gel method. Tetraethoxysilane and 3-(trimethoxysilyl)propyl methacrylate were used as the inorg. and organic compds., resp. Lanthanide

complexes [Eu(phen)2]Cl3 were incorporated into the organically modified silicates and the luminescence properties of the resultant hybrid films were characterized. The relative quantum efficiency was observed higher and the lifetimes were longer in hybrid films than those in pure silica films. Furthermore, thermal stability of hybrid films incorporating various concentration of Eu(III) complex was studied.

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 73

IT Silsesquioxanes
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(acrylic-silicate-; synthesis and **luminescence** properties of **organic**-inorg. **hybrid** thin **films** doped with Eu(III))

IT Hybrid organic-inorganic materials
(doped with lanthanide complexes; synthesis and **luminescence** properties of **organic**-inorg. **hybrid** thin **films** doped with Eu(III))

IT Sol-gel processing
(polymerization; synthesis and **luminescence** properties of **organic**-inorg. **hybrid** thin **films** doped with Eu(III))

IT Polymerization
(sol-gel; synthesis and **luminescence** properties of **organic**-inorg. **hybrid** thin **films** doped with Eu(III))

IT Dopants
Luminescence
Thermal stability
(synthesis and **luminescence** properties of **org**.-inorg. **hybrid** thin **films** doped with Eu(III))

IT 22763-33-3
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; synthesis and **luminescence** properties of **org**.-inorg. **hybrid** thin **films** doped with Eu(III))

IT 7631-86-9, Silica, uses
RL: NUU (Other use, unclassified); USES (Uses)
(substrate; synthesis and **luminescence** properties of **organic**-inorg. **hybrid** thin **films** doped with Eu(III))

IT 141087-50-5P
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis and **luminescence** properties of **org**.-inorg. **hybrid** thin **films** doped with Eu(III))

L33 ANSWER 8 OF 17 HCA COPYRIGHT 2004 ACS on STN

134:333315 Progress in luminescent films prepared by sol-gel process. Lin, Jun; Pang, Mao-Lin; Han, Yin-Hua; Zhou, Yong-Hui; Yu, Min; Zhang, Hong-Jie (Laboratory of Rare Earth Chemistry and Physics, Changchun Institute of Applied; Chemistry, Chines, Changchun, 130022, Peop. Rep. China). Wuji Huaxue Xuebao, 17(2), 153-160 (Chinese) **2001**. CODEN: WHUXEO. ISSN: 1001-4861. Publisher: Wuji Huaxue Xuebao Bianjibu.

AB In this paper, state of the art for luminescent films prepared by sol-gel process has been reviewed. The basic process and characteristics for the synthesis of luminescent films via sol-gel method, characterization methods for the films and the current status for the development and application of luminescent films are discussed in the context. An

elucidation has been made on the luminescent films classified by composition, including inorg. **luminescent** films and **organic**/inorg. **hybrid luminescent films.** The sol-gel derived luminescent films have-found applications in the display devices for photoluminescence, electroluminescence, cathodoluminescence and field emission etc. The future development tendency for the luminescent films are forecasted. A review with 40 refs.

CC 73-0 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74

L33 ANSWER 9 OF 17 HCA COPYRIGHT 2004 ACS on STN
133:315364 Two-layer **light emitting** diodes prepared by the sol-gel route. De Morais, Tony Dantas; Chaput, Frederic; Boilot, Jean-Pierre; Lahlil, Khalid; Darracq, Bruno; Levy, Yves (Groupe de chimie du solide, Laboratoire de physique de la matiere condensee, UMR CNRS 7643, Ecole polytechnique, Palaiseau, 91128, Fr.). Comptes Rendus de l'Academie des Sciences, Serie IV: Physique, Astrophysique, 1(4), 479-491 (English) **2000.** CODEN: CRACFI. Publisher: Editions Scientifiques et Medicales Elsevier.

AB Green-emitting organic-inorg. hybrid **light-emitting** diodes (HLED) were formed of two **hybrid** thin **layers,** exhibiting different functionalities, which are sandwiched between indium-tin oxide (**ITO**) and metallic **electrodes.** The layers were prepared from silane precursors modified with hole transporting units and **light-emitting** naphthalimide moieties by the sol-gel technique. The hole transporting sol-gel layers exhibit about the same charge mobility as organic polymers having equivalent active units. The maximum external quantum efficiency of the best diode using LiF/Al cathode was about 1% and the luminance reaches 4000 cd·m-2.

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST sol gel processing **light emitting** device

IT **Electroluminescent** devices
Semiconductor device fabrication
Sol-gel processing
(two-layer **light-emitting** diodes prepared by sol-gel route)

IT 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride, uses 25067-59-8, Polyvinylcarbazole 50926-11-9, Indium tin oxide
RL: DEV (Device component use); USES (Uses)
(two-layer **light-emitting** diodes prepared by sol-gel route)

IT 301651-55-8P 301651-57-0P 301651-59-2P 301651-61-6P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(two-layer **light-emitting** diodes prepared by sol-gel route)

IT 301651-54-7P 301651-56-9P 301651-58-1P 301651-60-5P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(two-layer **light-emitting** diodes prepared by sol-gel route)

L33 ANSWER 10 OF 17 HCA COPYRIGHT 2004 ACS on STN
133:10725 Optical properties of (organic polysilane)-(inorganic matrix) hybrid thin films. Mimura, S.; Naito, H.; Kanemitsu, Y.; Matsukawa, K.; Inoue,

H. (Department of Physics and Electronics, Osaka Prefecture University, Sakai, Osaka, Japan). Journal of Luminescence, 87-89, 715-717 (English) **2000**. CODEN: JLUMA8. ISSN: 0022-2313. Publisher: Elsevier Science B.V..

AB Polysilane-inorg. hybrid thin films - organic polysilane embedded in a SiO2 matrix - were fabricated using a sol-gel method to improve the durability of organic polysilanes as optoelec. devices. Photoluminescence measurements at 10 K show that the durability against UV light exposure is improved in the polysilane-inorg. hybrid thin films. The luminescence linear polarization memory is found at 10 K, suggesting the decrease in the interchain interaction of polysilanes in the polysilane-inorg. hybrid thin films.

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36

ST silane polymer org hybrid inorg film optical property; LED silane polymer org hybrid inorg film UV durability; **luminescence** silane polymer **org hybrid** inorg **film**; UV spectra silane polymer org hybrid inorg film; sol gel silane polymer org inorg film optical property; exciton confinement silane polymer org inorg film optical property; optoelec device silane polymer org inorg film optical property; polarization luminescence silane polymer org inorg film sol gel; memory polarization luminescence silane polymer org inorg film

L33 ANSWER 11 OF 17 HCA COPYRIGHT 2004 ACS on STN

131:357893 Organic **light emitting** micro-pixels based on hybrid sol-gel glass arrays. Rantala, J. T.; Jabbour, G. E.; Vahakangas, J.; Honkanen, S.; Kippelen, B.; Peyghambarian, N. (Optical Sciences Center, The University of Arizona, Tucson, AZ, 85721, USA). Advances in Science and Technology (Faenza, Italy), 27(Innovative Light Emitting Materials), 283-290 (English) **1999**. CODEN: ASETE5. Publisher: Techna.

AB We demonstrate a novel technique of fabricating organic **light-emitting** devices. Each device consists of 1480 micro-pixels, with a pixel dimension of 45 + 45 μm2. The pixels were obtained by using a single-step UV patternable sol-gel **hybrid** glass thin **film**. More than 1% in external quantum efficiency and green light exceeding 27,000 cd/m2 are demonstrated.

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 57, 74

ST sol gel glass pattern org **light emitting** device

IT Photolithography
(UV; patterned hybrid sol-gel glass array on **ITO** for organic **light emitting** devices)

IT **Electroluminescent** devices
(high-resolution organic **light emitting** devices using UV-patterned hybrid sol-gel glass on **ITO electrode**)

IT Ceramers
Electric current-potential relationship
Optical imaging devices
Sol-gel processing
(organic **light emitting** devices using UV-patterned hybrid sol-gel glass)

IT 50926-11-9, **ITO**
RL: DEV (Device component use); USES (Uses)
(**anode**; UV-patterned hybrid sol-gel glass array on **ITO** for organic **light emitting** devices)

IT 7439-95-4, Magnesium, uses
RL: DEV (Device component use); USES (Uses)
(cathode; organic **light emitting** devices using
UV-patterned hybrid sol-gel glass)
IT 2085-33-8, Tris(8-quinolinolato)aluminum
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(emissive layer; organic **light emitting** devices using
UV-patterned hybrid sol-gel glass)
IT 65181-78-4, TPD
RL: DEV (Device component use); USES (Uses)
(hole transport; organic **light emitting** devices using
UV-patterned hybrid sol-gel glass)
IT 947-19-3, 1-Hydroxycyclohexyl phenyl ketone
RL: NUU (Other use, unclassified); USES (Uses)
(photoinitiator; sol-gel patterned glass for organic **light emitting** devices)
IT 79-41-4, Methacrylic acid, reactions 2530-85-0 23519-77-9, Zirconium(4+) propoxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(sol-gel patterned glass for organic **light emitting** devices)

L33 ANSWER 12 OF 17 HCA COPYRIGHT 2004 ACS on STN
130:344496 Orange and green **electroluminescence** with hybrid **light-emitting** diodes. De Morais, Tony Dantas; Chaput, Frederic; Lahlil, Khalid; Boilot, Jean-Pierre (Groupe de Chimie du Solide, Laboratoire de Physique de la Matiere Condensee, UMR CNRS 7643, Ecole Polytechnique, Palaiseau, 91128, Fr.). Proceedings of SPIE-The International Society for Optical Engineering, 3476(Organic Light-Emitting Materials and Devices II), 338-348 (English) **1998**. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.
AB The authors have elaborated for the 1st time organic-inorg. hybrid **light-emitting** diodes (HLED). These devices emitting in the orange and in the green are formed of one, two or three **hybrid** thin **layers** exhibiting different functionalities and sandwiched between In-Sn oxide (**ITO**) and metallic **electrodes**.
These layers were prepared by the sol-gel technique from silane precursors modified with hole or electron transporting units and with **light -emitting** DCM or naphthalimide moieties.
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 29, 36, 72
ST **electroluminescence** hybrid **light emitting** diode multilayer device
IT Luminescence
Luminescence, **electroluminescence**
Organic synthesis
Oxidation potential
Reduction potential
Sol-gel processing
(orange and green **electroluminescence** with hybrid **light-emitting** diodes)
IT **Electroluminescent** devices
(organic-inorg. hybrid; orange and green **electroluminescence**)
IT 147-14-8, Copper phthalocyanine 7429-90-5, Aluminum, uses 7440-57-5, Gold, uses 7440-70-2, Calcium, uses

RL: DEV (Device component use); USES (Uses)
(electrode materials for green **light emitting** diodes)

IT 78-10-4, Tetraethoxysilane 2031-67-6 9011-14-7, PMMA 15082-28-7 25067-59-8, 9H-Carbazole, 9-ethenyl-, homopolymer
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(orange and green **electroluminescence** with hybrid **light-emitting** diodes)

IT 219535-34-9P 221105-38-0P 224563-85-3P 224563-91-1P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(orange and green **electroluminescence** with hybrid **light-emitting** diodes)

IT 119438-04-9 224563-94-4
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(orange and green **electroluminescence** with hybrid **light-emitting** diodes)

IT 194354-31-9P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(orange and green **electroluminescence** with hybrid **light-emitting** diodes)

L33 ANSWER 13 OF 17 HCA COPYRIGHT 2004 ACS on STN
130:229731 Hybrid organic-inorganic **light-emitting** diodes.
Dantas de Morais, Tony; Chaput, Frederic; Lahlil, Khalid; Boilot, Jean-Pierre (Groupe Chimie Solide, Laboratoire Physique Matiere Condensee, Ecole Polytechnique, Palaiseau, F-91128, Fr.). Advanced Materials (Weinheim, Germany), 11(2), 107-112 (English) **1999.** CODEN: ADVMEW. ISSN: 0935-9648. Publisher: Wiley-VCH Verlag GmbH.

AB To improve the aging and environmental stability of LEDs, hybrid organic-inorg. materials consisting of 2-3 layers with different functionalities were synthesized using the sol-gel technique. These layers were prepared from silane precursors with hole- or electron-transporting units and **light-emitting** species. For the emissive layers the authors used Si-DCM prepared by reacting the OH groups of 4-dicyanomethylene-2-Me-6-[p-(dimethylamino)styryl]-4H-pyran (DCM) and the isocyanate group 3-(isocyanatopropyl)triethoxysilane in DMF. SiDCM was copolymd. with methyltriethoxysilane and doped by 2-(4-biphenylyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole (PBD) or Si-PBD. As hole transport layer polyvinylcarbazole or 9-[3-(1,1,1-triethoxysilyl)propyl]-9H-carbazole + TEOS was used. The **electroluminescent** properties of the sol-gel materials were demonstrated by manufacturing devices which emitted in the orange
consisting of the organic-inorg. multilayer sandwiched between a transparent **ITO electrode** and an evaporated Al cathode.

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36, 38, 76

ST **light emitting** diode sol gel fabrication; LED org inorg multilayer **electroluminescence** efficiency; cyanomethylenepyranylvinylphenylaminoethyl ethoxysilylpropylcarbamate hybrid LED **electroluminescence;** biphenylylphenyl oxadiazole ethoxysilylpropylcarbamate hybrid LED **electroluminescence;** current voltage LED hybrid org inorg silane precursor

IT Sol-gel processing

(**coating**; **hybrid** organic-inorg. LEDs fabricated by sol-gel process from silane-based precursors)
IT **Electroluminescent** devices
(current-voltage-, luminance-voltage characteristics, and luminescence and **electroluminescence** spectra of hybrid organic-inorg. LEDs fabricated by sol-gel process from silane-based precursors)
IT Electric current-potential relationship
Luminescence
(of hybrid **organic**-inorg. LEDs fabricated by sol-gel process from silane-based precursors)
IT Luminescence, **electroluminescence**
(spectra; of hybrid organic-inorg. LEDs fabricated by sol-gel process from silane-based precursors)
IT 221105-35-7
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(dopant; current-voltage-, luminance-voltage characteristics, and luminescence and **electroluminescence** spectra of hybrid organic-inorg. LEDs fabricated by sol-gel process from silane-based precursors)
IT 25067-59-8, Polyvinylcarbazole
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(hole transport **layer**; **hybrid** organic-inorg. LED sol-gel fabrication and characterization by current-voltage, luminance-voltage, luminescence, and **electroluminescence** using)

L33 ANSWER 14 OF 17 HCA COPYRIGHT 2004 ACS on STN
130:189087 Organic/inorganic hybrid electroluminescent devices prepared via sol-gel process. Keum, Ji Hwan; Kang, Eunjung; Kim, Youngkyoo; Cho, Won Jei; Ha, Chang Sik (Department of Polymer Science and Engineering, Pusan National University, Pusan, 609-735, S. Korea). Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals, 316, 297-300 (English) **1998**. CODEN: MCLCE9. ISSN: 1058-725X. Publisher: Gordon & Breach Science Publishers.
AB Organic/inorg. hybrid thin film was introduced into organic electroluminescent device (ELD) to enhance the device stability. The inorg. network structure was prepared via sol-gel reaction from tetraethoxysilane (TEOS) in the presence of H_2O. 4-(Dicyanomethylene)-2-Me-6-(4-dimethylaminostyryl)-4H-pyran(DCM) was used as an organic lumophore. The ELD was fabricated in a simple structure of **anode**/hybrid layer/**cathode**. The turn-on voltage of the ELD was .apprx.30 Vdc with the strong emission at 40 Vdc. The color of the emitted light was light green, meaning a blue shift from the color of the resp. solution
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 57, 76
IT Sol-gel processing
(**coating**; organic/inorg. **hybrid** **electroluminescent** devices prepared via sol-gel process)
IT **Electroluminescent** devices
(thin-**film**; organic/inorg. **hybrid** **electroluminescent** devices prepared via sol-gel process)

L33 ANSWER 15 OF 17 HCA COPYRIGHT 2004 ACS on STN
127:25373 **Hybrid film electroluminescent** a.c. emitter. Gurin, N. T.; Sabitov, O. Yu. (Mosk. Gos. Univ., Ulyanovsk,

432700, Russia). Zhurnal Tekhnicheskoi Fiziki, 66(11), 201-202 (Russian) **1996**. CODEN: ZTEFA3. ISSN: 0044-4642. Publisher: Nauka.

AB The electroluminescent devices with the thick dielec. layer deposited on the thin-layered structure were fabricated. The metal-dielec.-semiconductor-dielec.-metal and metal-dielec.-semiconductor-dielec.-thick dielec.-metal structures were examined The brightness-voltage characteristics were analyzed in a function of annealing conditions.

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST **hybrid film electroluminescent electroluminescence** emitter; zinc sulfide zirconium yttrium oxide emitter

IT **Electroluminescent** devices
Luminescence, **electroluminescence**
(**hybrid film electroluminescent** a.c. emitter)

IT Annealing
(optimization; **hybrid film electroluminescent** a.c. emitter)

IT 1314-98-3, Zinc sulfide, uses 7429-90-5, Aluminum, uses 18282-10-5, Tin dioxide 119513-25-6, Yttrium zirconium oxide y0.26zr0.87o2.13
RL: DEV (Device component use); USES (Uses)
(**hybrid film electroluminescent** a.c. emitter)

IT 7439-96-5, Manganese, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**hybrid film electroluminescent** a.c. emitter)

L33 ANSWER 16 OF 17 HCA COPYRIGHT 2004 ACS on STN

120:91115 Hybrid silicon molecular beam epitaxial regrowth for a strained silicon-germanium/silicon single-quantum-well electroluminescent device. Kato, Y.; Fukatsu, S.; Usami, N.; Shiraki, Y. (Tokyo Res. Lab., IBM, Yamato, 242, Japan). Applied Physics Letters, 63(17), 2414-16 (English) **1993**. CODEN: APPLAB. ISSN: 0003-6951.

AB An n-type Si contact layer for an electroluminescent (EL) diode was successfully grown on a Si/Si1-xGex/Si single-quantum-well (SQW) structure by hybrid Si MBE for the 1st time. The hybrid MBE was performed by regrowing the Si contact layer in a solid-source MBE chamber after transferring the SQW sample through air from a gas-source (GS) MBE chamber, in which the starting SQW structure was grown. A (2 + 1) reconstruction was observed on a GSMBE-prepared Si(100) surface even after the SQW sample was exposed to air for up to 15 h. An excellent quality of the EL device was evidenced by the sharpest emission lines ever reported in the EL spectra of SiGe system. The spectral features of the EL and photoluminescence are almost identical, and a well-resolved acoustic phonon replica was observed

CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 73

IT Epitaxy
(mol.-beam, of silicon **hybrid layer**, for **electroluminescent** diode)

L33 ANSWER 17 OF 17 HCA COPYRIGHT 2004 ACS on STN

119:106015 **Hybrid** thin **film**-powder **electroluminescent** device. Aoki, Yuichi; Enjoji, Katsuhisa; Yoshii, Tetsuo; Anzaki, Toshiaki; Wada, Shunji (Nippon Sheet Glass Co.,

Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04363895 A2 **19921216**
Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-286049
19911031. PRIORITY: JP 1991-13837 19910111.

AB The title device, suited for use as a character and graphic display, consisting of a transparent **electrode,** a luminescent layer, a current-limiting layer of compacted conductive fine powder, and a back side **electrode,** formed in that order on a transparent insulator base, further comprises an electron barrier layer disposed between the transparent **electrode** and the luminescent layer and/or between the luminescent layer and the current-limiting layer.

IC ICM H05B033-22
ICS G09F009-30

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 73

ST **hybrid** thin **film** powder **electroluminescent** display

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L34 ANSWER 1 OF 22 HCA COPYRIGHT 2004 ACS on STN
137:348760 Sheet apparatus of composite material for detecting complementary nucleic acid fragments from the living body. Hosoi, Yuichi (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 1258287 A2 20021120, 10 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2002-11216 20020521. PRIORITY: JP 2001-150018 20010518.

AB The invention concerns a composite material sheet favorably utilizable for anal. of substances originating from living body or its analogs has partitions two-dimensionally extending on a sheet plane to form fine sections surrounded by the partitions and porous material. Further, portions each of which is placed in the fine section, in which the partitions are made of material having a mean d. of 0.6g/cm or higher and the porous material portions have a mean d. of 1.0g/cm or lower, under the condition that the mean d. of material of the partitions is higher than the mean d. of the material of the porous material portions. Diagrams describing the apparatus assembly and operation are given.

IC ICM B01J019-00
ICS C12Q001-68

CC 9-1 (Biochemical Methods)
Section cross-reference(s): 3

IT Apparatus
Ceramics
Immobilization, molecular or cellular
Light sources
Nucleic acid **hybridization**
Phosphors
(**sheet** apparatus of composite material for detecting complementary nucleic acid fragments from the living body)

L34 ANSWER 2 OF 22 HCA COPYRIGHT 2004 ACS on STN
137:301920 Semiconductor **light-emitting** device and method for manufacturing the same. Wang, Tien Yang (USA). U.S. US 6469324 B1 20021022, 20 pp. (English). CODEN: USXXAM. APPLICATION: US 2000-577446 20000524. PRIORITY: US 1999-PV135946 19990525.

AB Semiconductor (e.g., AlGaInP) **light-emitting** devices

are described which comprise a substrate on a first electrode; an active layer bounded by an upper and a lower confining layer overlaying the substrate; a window layer overlaying the upper confining layer; a contact layer overlaying the window layer; a second electrode on the contact layer; a first metal layer overlaying the entire surface of the contact layer between the contact layer and the second electrode; a first transparent conductive oxide layer between the first metal layer and the second electrode, and overlaying the entire surface of the first metal layer; a second metal (e.g., Ag) layer between the substrate and the lower confining layer; and a second transparent conductive oxide (e.g., of In Sn oxide) layer between the second metal layer and the lower confining layer. The second metal and second oxide **layers** form a **hybrid** reflective structure at the substrate interface that results in reduced substrate absorption loss and light piping; the upper metal and oxide layers serve as a hybrid antirfelective structure promoting light extraction

IC ICM H01L033-00

NCL 257098000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST **electroluminescent** device conductive reflector **hybrid** antireflection **layer**

IT **Electroluminescent** devices
(**light-emitting** devices with lower hybrid reflective structures and upper hybrid antireflective structures)

IT 7440-22-4, Silver, uses 50926-11-9, Indium tin oxide 163207-18-9, Aluminum gallium indium phosphide
RL: DEV (Device component use); USES (Uses)
(**light-emitting** devices with lower hybrid reflective structures and upper hybrid antireflective structures)

L34 ANSWER 3 OF 22 HCA COPYRIGHT 2004 ACS on STN

137:224258 Organic-inorganic **hybrid films** with good oxygen and water vapor barrier properties for organic **electroluminescent** (**EL**) elements and organic **EL** devices therewith.
Sawai, Yuichi; Oishi, Tomoji; Kaneko, Yoshiyuki; Aratani, Sukekazu (Hitachi Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002260848 A2 20020913, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-60446 20010305.

AB Title films contain fluoro groups, siloxane groups, and photosensitive groups. Thus, 1:1:1 mol mixture of trifluoroalkyltrimethoxysilane $CF_3(CH_2)_nSi(OCH_3)_3$ (n = 1-10), alkoxy group-containing photosensitive acrylic resin, and trimethoxyvinylsilane was hydrolytically polycondensed to give an organic-inorg. hybrid solution, which was applied on a 12.1 μm-thick PET substrate and cured with UV to give a 13.2 μm-thick film with oxygen permeability 0.55 cc/m2/day and water vapor permeability 0.61 g/m2/day.

IC ICM H05B033-04
ICS C08F299-08; H05B033-14

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 42, 73

ST org inorg **hybrid film** oxygen water vapor barrier **electroluminescent; EL** device fluoro methoxysilane polymer prepn

IT Silsesquioxanes
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic; preparation of inorg.-organic **hybrid films** with good oxygen and water vapor barrier properties for organic **EL**

devices)
IT Coating materials
(impermeable; preparation of inorg.-organic **hybrid films** with good oxygen and water vapor barrier properties for **EL** devices)
IT **Electroluminescent** devices
Electronic packaging materials
(preparation of inorg.-organic **hybrid films** with good oxygen and water vapor barrier properties for **EL** devices)
IT Hybrid organic-inorganic materials
Laminated plastic films
(preparation of inorg.-organic **hybrid films** with good oxygen and water vapor barrier properties for organic **EL** devices)
IT Polyesters, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(substrate; preparation of inorg.-organic **hybrid films** with good oxygen and water vapor barrier properties for organic **EL** devices)
IT 1305-78-8, Calcium oxide, uses 1309-48-4, Magnesium oxide, uses 1344-28-1, Aluminum oxide, uses 7631-86-9, Silicon dioxide, uses 11126-22-0, Silicon oxide 12033-89-5, Silicon nitride, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(preparation of inorg.-organic **hybrid films** with good oxygen and water vapor barrier properties coated with or containing)
IT 2487-90-3DP, Trimethoxysilane, trifluoroalkyl derivs., polymers with alkoxy-containing acrylic resins and trimethoxyvinylsilane 2768-02-7DP, Trimethoxyvinylsilane, polymers with trifluoroalkyltrimethoxysilane and alkoxy-containing acrylic resins
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of inorg.-organic **hybrid films** with good oxygen and water vapor barrier properties for organic **EL** devices)
IT 25038-59-9, Polyethylene terephthalate, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(substrate; preparation of inorg.-organic **hybrid films** with good oxygen and water vapor barrier properties for organic **EL** devices)

L34 ANSWER 4 OF 22 HCA COPYRIGHT 2004 ACS on STN
137:101267 Thin film **electroluminescent** device having thin-film current control layer. Kim, Yong-shin; Yun, Sun Jin; Park, Sang-hee; Lee, Yong Eui (S. Korea). U.S. Pat. Appl. Publ. US 2002101153 A1 20020801, 10 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-978456 20011016. PRIORITY: KR 2000-72323 20001201.
AB A thin-film **electroluminescent** device (ELD) is described comprising a stacking of a transparent substrate, transparent electrodes, a thin-film phosphor layer, a thin-film current control layer and metal electrodes, wherein the thin-film current control layer acts as an energy barrier layer, which supplies energetic electrons into the phosphor layer by a field-assistant injection of electron, and a current-limiting layer which prevents an elec. field breakdown of the **electroluminescent** device caused by an excess current flow. A thin-film **electroluminescent** device may comprise a stacking of a transparent

substrate, transparent electrodes, a thin-film phosphor layer, a thin-film energy barrier layer, a thin-film current-limiting layer and metal electrodes, wherein the energy barrier layer supplies energetic electrons into the phosphor layer by a field-assistant injection of electron, and the current-limiting layer prevents an elec. field breakdown of the **electroluminescent** device caused by an excess current flow. The ELD has the advantages of having a lower operation voltage than that of the conventional thin-film a.c. ELD and a higher resolution than that of the conventional thin-**film**/powder **hybrid** d.c. ELD. The thin-film current control layer acts as an energy barrier layer which supplies energetic electrons into the phosphor layer by a field-assistant injection of electron, and a current-limiting layer which prevents an elec. field breakdown of the **electroluminescent** device caused by an excess current flow.

IC ICM H05B033-22

NCL 313506000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST thin film **electroluminescent** device current control

IT **Electroluminescent** devices
(thin-film; thin film **electroluminescent** device having thin-film current control layer)

IT 1314-61-0, Tantalum oxide (Ta2O5) 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titanium oxide (TiO2), uses 132614-63-2, Silicon nitride oxide (SiNO)
RL: DEV (Device component use); USES (Uses)
(current control layer containing; thin film **electroluminescent** device having thin-film current control layer)

IT 1304-28-5, Barium oxide (BaO), uses 1304-39-8, Barium selenide (BaSe) 1305-84-6, Calcium selenide (CaSe) 1306-23-6, Cadmium sulfide (CdS), uses 1314-13-2, Zinc oxide (ZnO), uses 1314-96-1, Strontium sulfide (SrS) 1314-98-3, Zinc sulfide (ZnS), uses 1315-09-9, Zinc selenide (ZnSe) 12009-36-8, Barium telluride (BaTe) 12013-57-9, Calcium telluride (CaTe) 12040-08-3, Strontium telluride (SrTe) 20548-54-3, Calcium sulfide (CaS) 21109-95-5, Barium sulfide (BaS)
RL: DEV (Device component use); USES (Uses)
(energy barrier layer containing; thin film **electroluminescent** device having thin-film current control layer)

IT 7439-92-1, Lead, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(thin film **electroluminescent** device having thin-film current control layer)

L34 ANSWER 5 OF 22 HCA COPYRIGHT 2004 ACS on STN

137:70388 Water-vapor-impermeable transparent substrate films for electronic devices and their manufacture. Yamada, Taketoshi; Kita, Hiroshi; Saito, Koichi; Okubo, Yasushi (Konica Co., Japan). Jpn. Kokai Tokkyo Koho JP 2002194228 A2 20020710, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-392502 20001225.

AB The films, for LCD and organic LED, are manufactured by casting of compns. comprising organic polymers (e.g., cellulose esters) satisfying solubility 0-5 g/100-g water and 25-100 g/100-g Me2CO at 25° and (hydrolyzates of) reactive (tetravalent) metal compds. The compns. satisfy alkali metal content <5000 ppm. The films may contain RfSiX14-n (Rf = F-containing alkyl or aryl; X1 = hydrolyzable group; n = 1-3). The LCD or LED using the substrate films keep high luminance for long time.

IC ICM C08L101-00
ICS C08J005-18; G09F009-30; H01L031-04; H05B033-02; H05B033-14
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 74
ST water vapor impermeable cellulose ester LED substrate; silicate silsesquioxane cellulose acetate propionate film; methylethoxysilane ethoxysilane copolymer cellulose acetate **hybrid film**; display liq crystal transparent film substrate
IT **Electroluminescent** devices
(organic; manufacture of transparent substrate films with low water-vapor permeability for electronic apparatus)

L34 ANSWER 6 OF 22 HCA COPYRIGHT 2004 ACS on STN
135:324573 Energy transfer in (organic polysilane)-(silica matrix) **hybrid** thin **films**. Naito, H.; Mimura, S.; Kobayashi, A.; Matsuura, Y.; Matsukawa, K.; Inoue, H.; Nihonyanagi, S.; Kanemitsu, Y. (Department of Physics and Electronics, Osaka Prefecture University, Sakai, Osaka, 599-8531, Japan). Thin Solid Films, 393(1,2), 199-203 (English) **2001**. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier Science S.A..
AB Excitation energy transfer in polysilane-SiO_2 **hybrid films** prepared by a sol-gel method were studied in terms of steady-state and time-resolved luminescence (PL) at 10 K with decreasing polysilane concentration in the **hybrid films**, the degree of the PL linear polarization memory is increased and the mean PL lifetime is gradually increased. These results can be interpreted in terms of the spatial confinement of excitation energy within polysilane chains in the **hybrid films** because of the increase in the interchain separation The information obtained here provides insights for optimizing nanostructured materials for use in optoelectronic devices.
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36, 66
ST energy transfer org polysilane silica matrix **hybrid film**
IT Energy transfer
(energy transfer in organic polysilane-silica matrix **hybrid films**)
IT **Luminescence**
Sol-gel processing
(of **organic** polysilane-silica matrix **hybrid films**)

L34 ANSWER 7 OF 22 HCA COPYRIGHT 2004 ACS on STN
135:160099 High throughput optical near-field aperture array for data storage. Minh, Phan Ngoc; Ono, Takahito; Tanaka, Shuji; Goto, Kenya; Esashi, Masayoshi (Faculty of Engineering, Tohoku University, Sendai, 980-8579, Japan). IEEE International Conference on Micro Electro Mechanical Systems, Technical Digest, 14th, Interlaken, Switzerland, Jan. 21-25, 2001, 309-312. Institute of Electrical and Electronics Engineers: New York, N. Y. (English) **2001**. CODEN: 69BHXI.
AB To create and use a strong **light source** with sub-wavelength size has opened up a new field, the near-field optics. One of the most attractive applications of the near-field optics is the next generation optical data storage. The optical memory with high d. and high data transfer rate is highly demanded to use an array of high throughput nano-scaled **light sources** for writing and reading bits on a medium. The authors propose a hybrid laser and aperture array for

optical near-field memory head, VCSEL/NSOM. A systematic study of the optical performance of the near-field light at the aperture of the Si micromachined tip array is presented. A primarily result of writing and reading bits on a phase change medium using the fabricated structure is demonstrated.

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 73

IT 7429-90-5, Aluminum, reactions
RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(thin film opaque **layer** of, in **hybrid** VCSEL/NSOM near-field optical memory head containing silicon diaphragm)

L34 ANSWER 8 OF 22 HCA COPYRIGHT 2004 ACS on STN

133:342970 Characterization of the BaTiO3/p-Si interface and applications. Evangelou, E. K.; Konofaos, N.; Craven, M. R.; Cranton, W. M.; Thomas, C. B. (Applied Physics Laboratory, Physics Department, University of Ioannina, Ioannina, 451 10, Greece). Applied Surface Science, 166(1-4), 504-507 (English) **2000**. CODEN: ASUSEE. ISSN: 0169-4332. Publisher: Elsevier Science B.V..

AB Barium titanate (BaTiO3), because of its high dielec. constant (.vepsiln.r), has proven to be a very promising candidate for use as dielec. layer in ac thin film **electroluminescent** (ACTFEL) devices and for use in thin **film hybrid** and integrated circuits. In the present work, BaTiO3 films were deposited on p-Si (100) substrates by rf-magnetron sputtering at a base temperature of 200°C. The electronic properties of the BaTiO3/p-Si interface were examined by means of admittance spectroscopy on metal-insulator-semiconductor (MIS) devices fabricated by thermal evaporation of Al. The d. of interface states (Dit) was calculated by both the capacitive and the conductive response of the traps; values of the order of 1012 eV-1 cm-2 were obtained for the Dit and values of 10-5 s were calculated for the relevant time consts. of the traps. These values, together with the dielec. constant of the films ranging between 40 and 60, show that the deposited films were suitable for use as cladding insulators in ACTFEL devices.

CC 76-3 (Electric Phenomena)

ST barium titanate silicon interface; **electroluminescent** device barium titanate silicon

IT Density of interface states
Dielectric constant
Electric insulators
Electroluminescent devices
Electronic properties
Integrated circuits
Interface
MIS devices
Magnetron sputtering
Trapping
(characterization of BaTiO3/p-Si interface and applications)

L34 ANSWER 9 OF 22 HCA COPYRIGHT 2004 ACS on STN

133:244859 Single-source thermal ablation method for deposition of organic-inorganic **hybrid films** suitable for luminescence. Chondroudis, Konstantinos; Mitzi, David Brian; Prikas, Michael Tony (International Business Machines Corporation, USA). U.S. US 6117498 A **20000912**, 11 pp. (English). CODEN: USXXAM.

APPLICATION: US 1998-192130 19981113.

AB Stable films of organic-inorg. hybrid materials (especially perovskites) are applied with selected stoichiometric ratio on a substrate by: (a) placing the substrate and an organic-inorg. hybrid having selected stoichiometry in a vacuum-furnace chamber; (b) rapid heating of the hybrid for total ablation, especially at <10-3 torr or under flowing N2 atmospheric; and (c) deposition of the **hybrid film** having selected stoichiometric ratio on the substrate. The hybrid feed is typically a perovskite material (R-NH4)2MX4 having R as an organic component, M as divalent metal, and X as a halogen, especially as (C4H9NH3)2SnI4 (I) or similar perovskites having 2-dimensional layered structure. The perovskite feed in optional solvent can be placed on Ta strip, and elec. heated for rapid evaporation and ablative vapor deposition as a stable film on adjacent substrate. The resulting I film shows optical luminescence spectrum with a sharp peak corresponding to radiative decay of excitons, showing the high film quality without thermal-dissociation damage in the deposition. The similar process is suitable for deposition of the **hybrid films** from non-perovskite organometal precursor, typically as NH3(CH2)6NH3BiI5 having a chain structure. The **hybrid film** is considered for **electroluminescence** applications.

IC ICM C23C008-54

NCL 427590000

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 29

IT 213555-69-2
RL: TEM (Technical or engineered material use); USES (Uses)
(films, hot deposition of; **hybrid films** deposited on substrate by heating for single-source thermal ablation)

L34 ANSWER 10 OF 22 HCA COPYRIGHT 2004 ACS on STN

133:219043 Identification of a Novel β-Catenin-Interacting Protein. Kawajiri, Aie; Itoh, Naohiro; Fukata, Masaki; Nakagawa, Masato; Yamaga, Masaki; Iwamatsu, Akihiro; Kaibuchi, Kozo (Division of Signal Transduction, Nara Institute of Science and Technology, Ikoma, 630-0101, Japan). Biochemical and Biophysical Research Communications, 273(2), 712-717 (English) **2000**. CODEN: BBRCA9. ISSN: 0006-291X. Publisher: Academic Press.

AB Cadherin is a well-known cell-cell adhesion mol., and it binds to β-catenin, which in turn binds to α-catenin. However, little is known about the regulatory mechanism underlying the cadherin-mediated cell-cell adhesion. Here we purified two novel β-catenin-interacting proteins with mol. masses of 180 kDa (p180) and 150 kDa (p150) from bovine brain cytosol by using glutathione S-transferase (GST)-β-catenin affinity column chromatog. Mass spectral anal. revealed p180 to be identical to KIAA0313 which has a putative Rap1 guanine nucleotide exchange factor (GEF) domain and p150 to be the same as KIAA0705 which has a high degree of sequence similarity to the synaptic scaffolding mol. (S-SCAM), which binds β-catenin and KIAA0313 in the yeast two-**hybrid** system and **overlay** assay, resp. β-Catenin was co-immunopptd. with KIAA0313 in Madin-Darby canine kidney II (MDCKII) cells, bovine brain cytosol, and **EL** cells. KIAA0313 and β-catenin were partly co-localized at sites of cell-cell contact in MDCKII cells. Taken together, our data suggest that KIAA0313 assocs. with β-catenin through KIAA0705 in vivo at sites of cell-cell contact. (c) 2000 Academic Press.

CC 6-3 (General Biochemistry)

L34 ANSWER 11 OF 22 HCA COPYRIGHT 2004 ACS on STN
132:251964 **Electroluminescent** polymers. Elschner, A.; Bruder, F.; Heuer, H.-W.; Karbach, A.; Thurm, S.; Wehrmann, R.; Andries, H.; Mortsel, B.; Huppauff, M.; Mayer, A.; Jonda, Ch.; Brutting, W.; Schwoerer, M. (Bayer AG, Krefeld, Germany). Werkstoffwoche '98, Band VIII: Symposium 10, Polymere; Symposium 14, Simulation Polymere, Munich, Sept., 1998, Meeting Date 1998, 203-208. Editor(s): Michaeli, Walter. Wiley-VCH Verlag GmbH: Weinheim, Germany. (German) **1999**. CODEN: 68SRAZ.

AB A review without refs. describing results of the authors' own research projects. To realize extensive, efficient, long-life, and flexible organic **light-emitting** diodes (LEDs), several systems of low-mol. and polymeric compds. were evaluated with respect to **electroluminescent** properties, capability of continuous film coating, structuring of electrodes, and encapsulation of the organic devices. Using the poly(3,4-ethylenedioxythiophene)/poly(styrene sulfonate) system as conductive organic layer and dendritic phenylamines as photoluminescent component, a **hybrid multilayer** organic LED was constructed, optimized, and characterized. General conclusions based on these results are reported of.

CC 38-0 (Plastics Fabrication and Uses)

ST **electroluminescent** polymer optimization LED review

IT Polymers, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**electroluminescent**; optimization of **electroluminescent** polymer systems for use in LEDs)

IT **Electroluminescent** devices
(optimization of **electroluminescent** polymer systems for use in LEDs)

L34 ANSWER 12 OF 22 HCA COPYRIGHT 2004 ACS on STN
130:58888 Conductive layer system and use thereof in **electroluminescent** systems. Huppauff, Martin; Sybrichs, Ralf; Gehrig, Andreas (Robert Bosch Gmbh, Germany). PCT Int. Appl. WO 9854767 A1 **19981203**, 21 pp. DESIGNATED STATES: W: JP, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (German). CODEN: PIXXD2. APPLICATION: WO 1998-DE1467 19980529. PRIORITY: DE 1997-19722946 19970531; DE 1997-19757874 19971224.

AB Transparent or semitransparent conductive layer systems consisting of organic and inorg. elec. conductive materials are described which comprise ≥2 layers, the first layer containing an organic or organometallic elec. conductive polymer which is transparent or semitransparent in the visible range of the electromagnetic spectrum while the second contains at least one elec. conductive inorg. compound or a metal or a metalloid doped accordingly. The layer systems forms a **multilayer hybrid** electrode for use as a cathode in **electroluminescent** systems. Use in displays is indicated.

IC ICM H01L051-20
ICS H05B033-28

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST org inorg layer cathode **electroluminescent** device

IT Cathodes
Electric contacts
Electroluminescent devices
Optical imaging devices
(elec. conductive multilayered systems including organic and inorg. layers

and their use in **electroluminescent** systems)
IT Polyacetylenes, uses
Polyanilines
RL: DEV (Device component use); USES (Uses)
(elec. conductive multilayered systems including organic and inorg. layers and their use in **electroluminescent** systems)
IT Polymers, uses
RL: DEV (Device component use); USES (Uses)
(polythiophenes; elec. conductive multilayered systems including organic and inorg. layers and their use in **electroluminescent** systems)
IT Aluminum alloy
Chromium alloy
Copper alloy
Gold alloy
Iron alloy
Palladium alloy
Platinum alloy
Silver alloy
Tin alloy
RL: DEV (Device component use); USES (Uses)
(elec. conductive multilayered systems including organic and inorg. layers and their use in **electroluminescent** systems)
IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-44-0, Carbon, uses 7440-47-3, Chromium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 11099-20-0 25233-30-1, Polyaniline 25233-34-5, Polythiophene 30604-81-0, Polypyrrole 30604-81-0D, Polypyrrole, derivs. 50926-11-9, Indium tin oxide 126213-51-2, 3,4-Polyethylenedioxythiophene
RL: DEV (Device component use); USES (Uses)
(elec. conductive multilayered systems including organic and inorg. layers and their use in **electroluminescent** systems)
IT 1314-98-3, Zinc sulfide, uses
RL: DEV (Device component use); USES (Uses)
(**electroluminescent** elements based on; elec. conductive multilayered systems including organic and inorg. layers and their use in **electroluminescent** systems)

L34 ANSWER 13 OF 22 HCA COPYRIGHT 2004 ACS on STN
129:348680 Hybrid sol-gel micro-patterning of organic **electroluminescent** devices. Rantala, Juha T.; Jabbour, Ghassan E.; Vahakangas, Jouko; Honkanen, Seppo; Kippelen, Bernard; Peyghambarian, Nasser (Optical Sciences Center, University of Arizona, Tucson, AZ, 85721, USA). Japanese Journal of Applied Physics, Part 2: Letters, 37(10A), L1098-L1100 (English) **1998**. CODEN: JAPLD8. ISSN: 0021-4922. Publisher: Japanese Journal of Applied Physics.
AB The authors demonstrate a novel technique of fabricating organic **light-emitting** devices. Each device consists of 1480 micro-pixels, with a pixel dimension of 45x45 μm2. The pixels were obtained by using a single-step UV patternable sol-gel **hybrid** glass thin **film**. Due to higher fields, micro-pixels based devices show forward light output at lower voltage than conventional devices. More than 1% in external quantum efficiency and green light exceeding 27,000 cd/m2 are demonstrated.
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36

ST LED TPD hydroxyquinoline aluminum sol gel trimethoxysilyl propyl methacrylate; **electroluminescent** device sol gel polymer TPD hydroxyquinoline aluminum

IT **Electroluminescent** devices
Sol-gel processing
(hybrid sol-gel micro-patterning of organic **electroluminescent** devices)

IT 79-41-4D, Methacrylic acid, zirconium complexes, polymer with (trimethoxysilyl)propyl methacrylate 2085-33-8, Hydroxyquinoline aluminum 2530-85-0D, polymer with zirconium methacrylate complexes 7440-67-7D, Zirconium, methacrylic acid complexes, polymer with (trimethoxysilyl)propyl methacrylate, uses 65181-78-4, N,N'-Diphenyl-N,N'-di(3-methylphenyl)benzidine
RL: DEV (Device component use); USES (Uses)
(hybrid sol-gel micro-patterning of organic **electroluminescent** devices)

L34 ANSWER 14 OF 22 HCA COPYRIGHT 2004 ACS on STN
129:154550 Thin film **light-emitting** device and its manufacture. Kido, Junji; Fukui, Toshimi; Toki, Motoyuki (Kansai Shingijutsu Kenkyusho K. K., Japan). Jpn. Kokai Tokkyo Koho JP 10199681 A2 **19980731** Heisei, 5 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1997-13336 19970108.

AB The device, having a pair of electrode layers sandwiching an organic fluorescent substance-based **light-emitting** layer, contains (A) an elec. conductive layer comprising a decomposed compound of a metal alkoxide or a metal salt or (B) an organic-inorg. **hybrid** elec. conductive **layer** comprising a decomposed compound of a metal alkoxide or a metal salt and an organic polymer between one of the electrode layers and the **light-emitting** layer. The device is manufactured by (1) forming an electrode layer comprising an elec. conductive transparent material on a glass substrate, (2) applying a solution containing the metal alkoxide or the metal salt and the optional polymer to form the conductive layer, and (3) successively coating the conductive layer with the **light-emitting** layer and the electrode layer. The manufacture method gives the device with improved luminous at low cost.

IC ICM H05B033-26
ICS H01B001-16; H05B033-10

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST **light emitting** device elec conductive layer; metal alkoxide **light emitting** device

IT Electric conductors
Electroluminescent devices
(manufacture of **electroluminescent** device containing elec. conductive layer)

IT 9011-14-7, Poly(methyl methacrylate)
RL: DEV (Device component use); USES (Uses)
(manufacture of **electroluminescent** device containing elec. conductive layer)

IT 1312-43-2P, Indium oxide 1314-13-2P, Zinc oxide, uses 1314-62-1P, Vanadium oxide, uses 1332-29-2P, Tin oxide 13463-67-7P, Titania, uses
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(manufacture of **electroluminescent** device containing elec. conductive layer)

IT 1686-22-2, Triethoxyvanadyl 5593-70-4 94845-38-2, Di-sec-butoxyzinc
124113-06-0, Tetra-sec-butoxytin
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(manufacture of **electroluminescent** device containing elec. conductive
layer)

L34 ANSWER 15 OF 22 HCA COPYRIGHT 2004 ACS on STN
123:69928 **Light-emitting** elements of the organic/inorganic
hybrid-type and methods for their fabrication. Ogura, Hiroyuki; Hanano,
Norifumi; Sugita, Masaya (Yazaki Corp., Japan). Ger. Offen. DE 4440410 A1
19950518, 17 pp. (German). CODEN: GWXXBX. APPLICATION: DE
1994-4440410 19941111. PRIORITY: JP 1993-282699 19931111.

AB **Light-emitting** devices comprising a metal substrate,
an isolating reflection film on the substrate, a phosphor luminescent
layer in which the phosphor is dispersed in a binder, a transparent
conductive film, and a protective cover layer are described in which the
substrate and the transparent conductive layer are connected elec. and the
phosphor used in the luminescent **layer** is a **hybrid**
-type phosphor in which the luminescent component is dispersed through the
pores of a porous inorg. material, the pores at least on the surface of
the layer being closed by an organic isolating material. Fabrication of the
devices includes impregnating the porous material with the appropriate
resin.

IC ICM H05B033-12

ICA G09F013-20

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 76

ST **electroluminescent** device phosphor dispersion porous host

IT **Electroluminescent** devices
Phosphors
(**light-emitting** elements of organic/inorg. hybrid-type
and methods for their fabrication)

IT Acrylic polymers, uses
Epoxy resins, uses
Fluoropolymers
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(**light-emitting** elements of organic/inorg. hybrid-type
and methods for their fabrication)

IT 165039-43-0, **EL** 729
RL: DEV (Device component use); MOA (Modifier or additive use); TEM
(Technical or engineered material use); USES (Uses)
(**light-emitting** elements of organic/inorg. hybrid-type
and methods for their fabrication)

IT 1344-28-1, Aluminum oxide, uses 7631-86-9, Silica, uses 9002-89-5D,
Poval, cyanoethylated 77466-56-9, Cyanoethyl pullulan 159995-97-8,
Aluminum silicon oxide
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(**light-emitting** elements of organic/inorg. hybrid-type
and methods for their fabrication)

IT 9004-41-5, Cyanoethyl cellulose
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(**light-emitting** elements of the organic/inorg.
hybrid-type and methods for their fabrication)

L34 ANSWER 16 OF 22 HCA COPYRIGHT 2004 ACS on STN
122:173156 Postgrowth of a Si contact layer on an air-exposed Si1-xGex/Si single quantum well grown by gas-source molecular beam epitaxy, for use in an **electroluminescent** device. Kato, Y.; Fukatsu, S.; Shiraki, Y. (IBM Res., Tokyo Res. Lab., Kanagawa, 242, Japan). Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures, 13(1), 111-17 (English) **1995**. CODEN: JVTBD9. ISSN: 0734-211X. Publisher: American Institute of Physics.

AB A Si contact layer for an **electroluminescent** (**EL**) diode was successfully grown on a Si1-xGex/Si single quantum well (SQW) **layer** by **hybrid** Si MBE. The hybrid MBE was performed by growing the Si contact layer in a solid-source MBE chamber after transferring the sample through air from a gas-source MBE (GSMBE) chamber in which the starting SQW layer was initially grown by using Si2H6 and GeH4. The growth characteristics of the hybrid MBE were studied by in situ monitoring of the RHEED. A (2+1) reconstruction was observed even after the sample was exposed to air for ≤15 h on a GSMBE-prepared Si(100) surface. Evidence of the excellent quality of the **EL** device was provided by the sharpest emission lines, a full width at half maximum of ≈5.5 meV. The spectral features of the **EL** and photoluminescence are almost identical, and a well-resolved acoustic phonon replica was observed Linear polarization for a no-phonon replica of **EL** was observed along SQW plane.

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST silicon germanium silicide MBE **electroluminescent** device

IT **Luminescence, electro-**
(of air-exposed germanium silicide/silicon single quantum well grown by gas-source MBE)

IT **Electroluminescent** devices
(silicon postgrowth of contact layer on air-exposed germanium silicide/silicon single quantum well grown by gas-source MBE for use in)

IT 7440-21-3, Silicon, properties
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(postgrowth of contact layer on air-exposed germanium silicide/silicon single quantum well grown by gas-source MBE for use in **electroluminescent** device)

IT 37380-03-3 80043-06-7
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(silicon postgrowth of contact layer on air-exposed silicon single quantum well grown by gas-source MBE for use in **electroluminescent** device with)

L34 ANSWER 17 OF 22 HCA COPYRIGHT 2004 ACS on STN
118:90408 Manufacture of **electroluminescent**-emitter/photodetector hybrids for image pickup devices. Murakami, Hironori; Funada, Masao; Yamada, Kiichi (Fuji Xerox Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04126390 A2 **19920427** Heisei, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-330584 19901130. PRIORITY: JP 1990-126976 19900518.

AB The photocopier element typically comprises: a manuscript (1), a platen (2), a 1st electrode (3) layer, a layer (4) consisting of alternating domains of an **electroluminescent** phosphor (5) and a window material (6), a 2nd electrode (7) layer, an adhesive (8) layer, and a photodetector (9) layer, wherein 2, 3, 6, and 8 are transparent; 3-7 and 9 are formed patternwisely; 5 **emits** the **light** which is reflected by 1, travels through 6-8 and then is detected by 9; and 4/5 are

formed by thick-**film hybrid** screen printing.
Alternative device elements and manufacturing particulars are also claimed.
The
thick-film-printing method produces versatile hybrids with markedly improved throughputs.

IC ICM H05B033-00
ICS B41J002-44; B41J002-45; B41J002-455; H01L027-15; H04N001-04; H05B033-10

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74

ST **electroluminescent** thick film printing phosphor ink; thick film printed **electroluminescent** photodetector hybrid; image scanner printed **electroluminescence** photodetector hybrid

IT Polyoxymethylenes, uses
RL: USES (Uses)
(binders, in thick-film phosphor inks, for **electroluminescent** -emitter/photodetector hybrid image-sensor manufacture)

IT **Electroluminescent** devices
(hybrids with with photodetectors, for image sensors)

IT Optical imaging devices
(thick-film-printed **electroluminescent**-emitter/photodetector hybrids for)

IT 1314-98-3, Zinc sulfide (ZnS), uses
RL: USES (Uses)
(**electroluminescent** thick-film phosphor inks from, for emitter/detector-hybrid image sensors)

IT 7440-21-3, Silicon, uses
RL: USES (Uses)
(thick-**film**-printed **hybrid** imagesensors containing, with **electroluminescent** emitters, in image sensors)

L34 ANSWER 18 OF 22 HCA COPYRIGHT 2004 ACS on STN

115:275242 Chemiluminescence-based static and flow cytometry. Bronstein, Irena Y.; Voyta, John C. (Tropix, Inc., USA). U.S. US 5032381 A **19910716**, 15 pp. (English). CODEN: USXXAM. APPLICATION: US 1988-286725 19881220.

AB Individual cells and subcellular particulates may be analyzed, or detected and separated, without the need for an external energy source by reacting endogenous or added components of cells and other particulate matter with added thermally, chemical, electrochem., photochem. or enzymically decomposable chemiluminescent compds. to produce optically detectable **light** energy **emissions**. White blood cells were fixed with formalin and then incubated sequentially with solution 1 (Na_2CO_3 buffer, pH 9.5 containing $MgCl_2$); solution 2 (solution 1 +
3-(2'-adamantyl)-4-methoxy-4-(3''-
phosphoryloxy)phenyl-1,2-dioxetane [AMPPD]); solution 2 + Na fluorescein; and solution 2 + BDMQ chemiluminescence enhancer and Na fluorescein. Aliquots of the cell suspension were then placed on a glass fiber membrane and the membrane were sandwiched between 2 pieces of Mylar film into a camera luminometer. The light resulting from 1-min exposures was imaged on Polaroid Type 612 film. Images of single neutrophils and colonies of cells are shown. The neutrophils are rich in alkaline phosphatase that catalyzes decomposition of AMPPD. Figures show schematic representations of flow cytometers and images produced.

IC ICM G01N031-00
ICS G01N033-48; G01N033-15; G01N033-53

NCL 424009000

CC 9-5 (Biochemical Methods)
IT Slides
(microscope, HEP2 cell fixation to, in in situ **hybridization** assay and **film** imaging)

L34 ANSWER 19 OF 22 HCA COPYRIGHT 2004 ACS on STN
114:194869 Optical and electrical properties of gallium arsenide **light -emitting** diodes grown on silicon substrates by a hybrid method of molecular beam and liquid phase epitaxies. Yazawa, Y.; Minemura, T.; Asano, J. (Hitachi Res. Lab., Hitachi, Ltd., Hitachi, 319-12, Japan). Applied Physics Letters, 58(12), 1292-4 (English) **1991.** CODEN: APPLAB. ISSN: 0003-6951.
AB **Light-emitting** diodes (LEDs) of GaAs were grown by a hydrid method which combines mol. beam epitaxy and liquid phase epitaxy on Si. The LEDs exhibit a low reverse leakage current and high stability of light intensity with aging compared with MBE-grown LEDs. These results are attributed to a higher crystallinity in the **hybrid**-grown GaAs **layers.**
CC 73-0 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76
ST gallium arsenide liq phase epitaxy silicon; LED gallium arsenide LPE silicon; zinc gallium arsenide LPE silicon; tellurium gallium arsenide LPE silicon; **electroluminescent** diode gallium arsenide LPE silicon; crystal structure gallium arsenide LED silicon
IT **Electroluminescent** devices
(gallium arsenide-silicon, LPE and MBE growth of)

L34 ANSWER 20 OF 22 HCA COPYRIGHT 2004 ACS on STN
113:94362 A light diffraction nucleic acid hybridization assay. Tsay, Yuh Geng; Calenoff, Emanuel; Gustafson, Eric K.; Trebino, Rick; Lee, John (Aspen Diagnostics, Inc., USA). Eur. Pat. Appl. EP 350073 A2 **19900110,** 16 pp. DESIGNATED STATES: R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1989-112493 19890707. PRIORITY: US 1988-216691 19880707.
AB The title assay uses nucleotide sequences as probes in a nucleic acid hybridization diffraction assay, to detect specific sequences in a sample. Diffraction assay methodologies are applied to determine the presence and amount of analyte. A biogrid or biograting provides greatly reduced nonspecific hybridization and binding. A preferred process involves adhering a uniform **layer** of **hybridizing** nucleotide sequence on a smooth, solid surface and exposing the surface to UV radiation through a shadow mask with a diffraction grating pattern of lines to selectively deactivate the hybridizing reagent, leaving a biol. diffraction grating design of lines of active hybridizing reagent. The smooth, solid surface is preferably Si. The diffraction hybridizing assay comprises contacting the diffraction biogrid with the sample to permit nucleic acid hybridization; separating the biogrid from the sample; illuminating the biogrid with light from a **light source;** and determining the light diffracted by the diffraction hybridization assay surface. Thus, human cytomegalovirus single-stranded DNA was immobilized on a Si wafer by the above method, and the wafer was placed on a dipstick. The dipstick was then exposed to a prepared urine sample for 2-3 h and then illuminated with 632.8 nm light from a He-Ne laser. The intensity of diffracted light was then compared to a standard curve. Diagrams of various embodiments are provided.
IC ICM C12Q001-68

CC 9-2 (Biochemical Methods)

L34 ANSWER 21 OF 22 HCA COPYRIGHT 2004 ACS on STN
110:181209 Readout of doublesided silicon strip detectors with high density integrated electronics. Becker, H.; Cattaneo, P.; Dietl, H.; Hauff, D.; Lange, E.; Lutz, G.; Moser, H. G.; Schwarz, A. S.; Settles, R.; et al. (Werner-Heisenberg-Inst. Phys., Max-Planck-Inst. Phys. Astrophys., Munich, D-8000/40, Fed. Rep. Ger.). IEEE Transactions on Nuclear Science, 36(1, Pt. 1), 246-50 (English) **1989**. CODEN: IETNAE. ISSN: 0018-9499.
AB The readout of double-sided Si strip detectors in colliding beam expts. poses severe constraints on the mech. and electronical design. The system is described that was developed for the ALEPH minivertex detector at LEP. The design makes use of capacitively coupled double-sided Si strip detectors and custom designed low noise VLSI CMOS electronics, mounted on ceramic carriers which simultaneously serve as mech. support and substrates for thick **film hybrid** circuitry. A description of the detector system with its peripheral driving and readout electronics as well as 1st test results with a **light source** and a particle beam are given.
CC 71-7 (Nuclear Technology)

L34 ANSWER 22 OF 22 HCA COPYRIGHT 2004 ACS on STN
104:44061 Additive thin **film** technology for **hybrid** circuit fabrication. Krokoszinski, H. J.; Oetzmann, H.; Gernoth, H.; Schmidt, C. (Cent. Res. Lab., Brown, Boveri und Cie A.-G., Heidelberg, D-6900, Fed. Rep. Ger.). Journal of Vacuum Science & Technology, A: Vacuum, Surfaces, and Films, 3(6), 2704-7 (English) **1985**. CODEN: JVTAD6. ISSN: 0734-2101.
AB The techniques of evaporation masking, or evaporation through metal masks, for fabricating thin-**film hybrid** circuits are described. The methods can be used to deposit locally several types of different materials, such as conducting, resistive, semicond., insulating and **electroluminescent** materials. The possibility of producing complex hybrid circuit in one vacuum cycle using these techniques is discussed. A typical circuit consisting of Cr Al_2O_3, Y_2O_3 and glass insulators, Nichrome and cermet resistors, and ceramic substrate is described.
CC 76-3 (Electric Phenomena)

```
=> file wpix
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>>> THE DISPLAY LAYOUT HAS BEEN CHANGED TO ACCOMODATE THE NEW FORMAT GERMAN PATENT APPLICATION AND PUBLICATION NUMBERS. SEE ALSO:
http://www.stn-international.de/archive/stnews/news0104.pdf <<<

=> d L46 1-3 all

```
L46  ANSWER 1 OF 3  WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN   2004-064594 [07]   WPIX
DNN  N2004-052290        DNC C2004-026574
TI   Semiconductor light emitting equipment has
     light-transmitting metalloxane gel layer covering semiconductor
     light emitting device anchored to the end of the one
     wiring conductor.
DC   A85 E12 L03 U12
PA   (SANK-N) SANKEN DENKI KK
CYC  1
PI   JP 2002134790   A  20020510 (200407)*     10    H01L033-00
ADT  JP 2002134790 A JP 2000-323179 20001023
PRAI JP 2000-323179        20001023
IC   ICM  H01L033-00
     ICS  C09K011-80
AB   JP2002134790 A UPAB: 20040128
```

NOVELTY - Semiconductor **light emitting** equipment has a pair of wiring conductors, a semiconductor **light emitting** device anchored to the end of the one wiring conductor, and a light-transmitting metalloxane gel layer for covering the semiconductor **light emitting** device.

DETAILED DESCRIPTION - Semiconductor **light emitting** equipment has a pair of wiring conductors, a semiconductor **light emitting** device anchored to the end of the one wiring conductor, and a light-transmitting metalloxane gel layer for covering the semiconductor **light emitting** device. The metalloxane gel layer contains a fluorescent material having light transmission to blue light irradiated from the semiconductor **light emitting** device and absorbing the blue light irradiated from the **light emitting** device to convert the blue light into yellow light. The metalloxane gel layer is formed of a metalloxane sol obtained by applying hydrolytic polymerization to a metal alkoxide, or a metalloxane sol obtained by applying hydrolytic polymerization to an inorganic/organic complex consisting of a metal alkoxide and an organic resin, or a metalloxane sol consisting of a ceramic precursor polymer. The metalloxane gel layer firmly sticks the semiconductor **light emitting** device to the wiring conductors. The fluorescent material consists of (Y1-x,Gdx)3(Al1-y,Gay)5O12:CezPrw.
x = 0- 0.5;
y = 0-0.5;
z = 0.001-0.5;
w = 0.001-0.5.

An INDEPENDENT CLAIM is included for the production of the semiconductor **light emitting** equipment, comprising:

(a) forming a cup portion on the end of one wiring conductor of a pair of wiring conductors;
(b) fixing the semiconductor **light emitting** device to the bottom of the cup portion;
(c) electrically connecting **electrodes** formed on the upper surface of the semiconductor **light emitting** device to the pair of wiring conductors by means of bonding wires;
(d) filling the fluorescent material and the metalloxane sol in the cup portion;
(e) covering the semiconductor **light emitting** device, the **electrodes,** and the ends of the bonding wires connected to the **electrodes;**
(f) drying/heating curing the metalloxane sol to form the metalloxane gel layer; and
(g) encapsulating the metalloxane gel layer by means of an encapsulating resin
The metalloxane gel layer is firmly stuck to the semiconductor **light emitting** device and the wiring conductors.
USE - The semiconductor **light emitting** equipment applies wavelength conversion to the light irradiated from the semiconductor **light emitting** device to outwardly release the light.
ADVANTAGE - The semiconductor **light emitting** device and the fluorescent material are surrounded by the metalloxane gel layer having stability under short wavelength light irradiation. The semiconductor **light emitting** equipment has enhanced resistance to environment. The semiconductor **light emitting** equipment has color rendering properties by using a host as garnet structure yttrium aluminum garnet and by using the Ce as an activator and the Pr as a co-activator.
DESCRIPTION OF DRAWING(S) - The drawing shows the semiconductor **light-emitting**-device (20).
Semiconductor **light-emitting**-element 2
Electrode (2a) of the cathode side of semiconductor **light-emitting**-element 2a
Wiring-conductor 3
Cup part 3a
Bottom-part of cup part 3b
Bonding wire 5
Dwg.1/9
FS CPI EPI
FA AB; GI; DCN
MC CPI: A06-D; A09-A02; A11-B05; A11-C02; A12-E04; A12-E07C; A12-E11A; E34-E; L04-E03
EPI: U12-A01

L46 ANSWER 2 OF 3 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-727091 [79] WPIX
DNN N2002-573413 DNC C2002-206369
TI Compositions for forming metal oxide thin films useful in the production of dielectric layers consist of polyvinyl acetamides, alkoxides of titanium or zirconium, and bivalent alkaline earth metal salts, dispersed in solvents.
DC A85 L03 V01 W02 X12
PA (DENK) TDK CORP
CYC 1
PI JP 2002255553 A 20020911 (200279)* 10 C01G023-04
ADT JP 2002255553 A JP 2001-56978 20010301

PRAI JP 2001-56978 20010301
IC ICM C01G023-04
ICS C01G025-00; C04B035-46
AB JP2002255553 A UPAB: 20021209
NOVELTY - A composition for forming a metal oxide thin film consists of a hydrophilic polymer, a metal alkoxide, and a metallic salt, which are dispersed in a solvent, the metal in the metallic salt is a bivalent alkaline earth metal, the metal in the metal alkoxide is Ti or Zr, the solvent contains a chelating agent, and the hydrophilic polymer is a polyvinyl acetamide.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for metal oxide thin films with thickness of at least 0.5 mu m which are made from the claimed compositions.

USE - The compositions for forming metal oxide thin films obtained can be used to form dielectric layers for **multilayer** ceramic capacitors, **hybrid** IC circuits, composite LC network circuits, and thin film **EL** devices.

ADVANTAGE - The compositions obtained remain stable for a long time and can be used to form thick films.
Dwg.0/11
FS CPI EPI
FA AB
MC CPI: A04-D; A08-A07; A08-S02; A12-E07; L03-B03F; L03-G05F
EPI: V01-B03A1; W02-A08C; X12-E01A

L46 ANSWER 3 OF 3 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-313574 [35] WPIX
TI Ac-dc **hybrid** type thin **film electroluminescent** device.
DC U14 X26
IN KIM, Y S; PARK, S H; YOON, S J
PA (KOEL-N) KOREA ELECTRONICS & TELECOM RES INST
CYC 1
PI KR 2001062973 A 20010709 (200235)* 1 H05B033-14
KR 319766 B 20020105 (200253) H05B033-14
ADT KR 2001062973 A KR 1999-59759 19991221; KR 319766 B KR 1999-59759 19991221
FDT KR 319766 B Previous Publ. KR 2001062973
PRAI KR 1999-59759 19991221
IC ICM H05B033-14
AB KR2001062973 A UPAB: 20020603
NOVELTY - An AC-DC **hybrid** type thin **film EL**(**ElectroLuminescence**) is provided to emit natural colors of high purity and high brightness and enhance the emission efficiency by selecting a drive circuit suitable to the luminescence characteristics according to respective colors.

DETAILED DESCRIPTION - An AC drive type single **EL** for emitting a plurality of colors and a DC drive type single **EL** for emitting a plurality of colors are formed on one substrate(**11**). The AC drive type single **EL** comprises a transparent anode(12), a fluorescent layer(13), an electron supply and electron acceleration layer(14) and a metal cathode(16) sequentially formed in their order. The DC drive type single **EL** comprises a transparent anode(.12), a lower insulating layer(17), a fluorescent layer(13), an upper insulating layer(18) and a metal cathode(16).
Dwg.1/10
FS EPI
FA AB; GI
MC EPI: U14-J; X26-J

=> d L80 1-12 ti

L80 ANSWER 1 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Barrier property laminated film for packaging use, comprises inorganic and organic **hybrid** polymer **layer** which has polymer with hydrogen bond formation group and metallic oxide.

L80 ANSWER 2 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Laminate useful for wrapping foods and drinks, medical supplies, or electronic members has enhanced gas barrier, heat resistance, mechanical strength.

L80 ANSWER 3 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Semiconductor **light-emitting** device and its manufacture.

L80 ANSWER 4 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Information recording and reproducing device for hybrid card - has contact type integrated circuit head, provided on mounting surface of recess, that contacts IC portion of IC card to enable recording and reproduction of information.

L80 ANSWER 5 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Mask membrane material mfg method used in X-ray lithography - involves formation of silicon carbide and **hybrid films** of silicon nitride over substrate, using target consisting of silicon carbide compact and silicon nitride compact.

L80 ANSWER 6 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Light emitting** element e.g. LED of UV wavelength - comprises sapphire substrate, aluminium nitride buffer layer, and p-type and n-type indium gallium nitride current dispersion and diffusion hybrid crystal.

L80 ANSWER 7 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Identifying and classifying surface qualities and defects of object - using video camera to store reflected images arising from sequential exposure to **light** from distributed **sources**.

L80 ANSWER 8 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Light source** identifier used in atomic absorption spectrometer - uses electronic coding read out in series according to beat pulse sequence corresp. to cavity cathode lamp.

L80 ANSWER 9 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Optical reader for camera **film** cartridges - has **hybrid** circuit, mounted adjacent cartridge chamber and including window to direct **light** from **emitters** to photosensors.

L80 ANSWER 10 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Hybrid** thin-**film** integrated circuit mfr. - uses several **light sources** patterning photoresist layer on thin metal coated substrate.

L80 ANSWER 11 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Optical microcircuit printing process - is for exposing to ultra-violet

light semiconductor or **coated hybrid** substrate.

L80 ANSWER 12 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Optical micro cct. printing with elimination of Fresnel diffraction - using light integrator comprising two successive lenticular matrices.

=> d L80 1,3,6,9-11 all

L80 ANSWER 1 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-472191 [45] WPIX
DNN N2003-375667 DNC C2003-126375
TI Barrier property laminated film for packaging use, comprises inorganic and organic **hybrid** polymer **layer** which has polymer with hydrogen bond formation group and metallic oxide.
DC A92 G02 P42 P73 U11 U12 U14 X15 X16 X26
PA (NIPQ) DAINIPPON PRINTING CO LTD
CYC 1
PI JP 2002301793 A 20021015 (200345)* 17 B32B027-18
ADT JP 2002301793 A JP 2001-96670 20010329
PRAI JP 2001-24461 20010131
IC ICM B32B027-18
ICS B05D003-06; B05D005-00; B05D007-04; B32B027-00; C08G081-00; C08J007-04
ICI C08L101:00
AB JP2002301793 A UPAB: 20030716
NOVELTY - The barrier property laminated film has a film base material, with organic and inorganic **hybrid** polymer **layer** on it.
The polymer layer has a polymer with hydrogen bond formation group, and metallic oxide microparticles dispersed in the polymer. The microparticles have an average particle diameter of 100 nm or less.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for manufacturing method of barrier property laminated film.
USE - For packaging of food/beverage products, pharmaceuticals, solar cell, polymer battery, liquid crystal film, organic **electroluminescence** element and electronic components.
ADVANTAGE - The film has excellent gas barrier property and transparency. Since the average particle diameter of the microparticles is less than 100 nm, cross-linked structure of polymer is effectively formed.
Dwg.0/0
FS CPI EPI GMPI
FA AB
MC CPI: A11-B09A2; A12-P01A; G02-A05
EPI: U11-C05B9A; U12-A02A4D; U14-J02B; U14-J02D2; U14-K01A4A; X15-A02; X16-F09; X26-J

L80 ANSWER 3 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-033057 [04] WPIX
DNN N2002-025390 DNC C2002-009142
TI Semiconductor **light-emitting** device and its manufacture.
DC L03 U12
IN WANG, T; WANG, T Y
PA (WANG-I) WANG T; (WANG-I) WANG T Y
CYC 2
PI TW 437104 A 20010528 (200204)* H01L033-00
US 6469324 B1 20021022 (200273) H01L033-00
ADT TW 437104 A TW 1999-109388 19990605; US 6469324 B1 Provisional US

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     1999-135946P 19990525, US 2000-577446 20000524
PRAI US 1999-135946P      19990525; US 2000-577446       20000524
IC   ICM  H01L033-00
AB   TW    437104 A UPAB: 20020117
     NOVELTY - A semiconductor light emitting device
     comprises an AlGaInP lower confining layer, an AlGaInP active layer, an
     AlGaInP upper confining layer and a window layer on the upper confining
     layer using the MOVPE process. The device further contains a
     hybrid antireflection layer on the top surface and a
     lower conductive reflector at the substrate interface. The light
     emitting device has a high surface light-extraction efficiency due
     to reduced substrate absorption loss and light piping. The hybrid
     antireflective layer contains at least a conductor layer for
     uniform current injection and an oxide layer for light extraction and
     environmental stability. The device structure contains a hybrid
     conductive transparent layer on the top surface and a conductive
     lower reflecting layer. Advantages of the LED include highly efficient
     current-spreading and surface light extraction.
     Dwg.1/1
FS   CPI EPI
FA   AB; GI
MC   CPI: L04-A02C; L04-E03
     EPI: U12-A01A

L80  ANSWER 6 OF 12  WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN   1996-352433 [35]   WPIX
DNN  N1996-297302        DNC C1996-111152
TI   Light emitting element e.g. LED of UV wavelength -
     comprises sapphire substrate, aluminium nitride buffer layer, and p-type
     and n-type indium gallium nitride current dispersion and diffusion hybrid
     crystal.
DC   L03 U12 V08
PA   (HITD) HITACHI CABLE LTD
CYC  1
PI   JP 08167735     A  19960625 (199635)*       6    H01L033-00
ADT  JP 08167735 A JP 1994-307430 19941212
PRAI JP 1994-307430        19941212
IC   ICM  H01L033-00
     ICS  H01S003-18
AB   JP  08167735 A UPAB: 19960905
     The light emitting element consists of a sapphire
     substrate (7) on which an AlN buffer layer (6) is formed. A N type InGaN
     current dispersing layer (5), a N type InGaN clay layer (4), a InGaN
     active layer (2) and a P type InGaN current diffusion layer (1) are
     sequentially formed on the buffer layer. The GaN hybrid
     crystal ratio of the active layer and the current diffusion layer are set
     to 0.6 and 0.7 respectively.
          Thus, the hybrid crystal ratio, difference is made to be lesser than
     or equal to 0.2 making the composition of the current diffusion layer near
     the composition of an active layer.
          ADVANTAGE - Develops light emitting layer with
     high intensity. Enables to grow up good active layer. Provides green and
     blue light with very high brightness.
     Dwg.1/4
FS   CPI EPI
FA   AB; GI
MC   CPI: L04-A02; L04-E03A; L04-E03B
     EPI: U12-A01A1A; U12-A01B1; V08-A04A
```

L80 ANSWER 9 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1985-066604 [11] WPIX
DNN N1985-049751
TI Optical reader for camera **film** cartridges - has **hybrid** circuit, mounted adjacent cartridge chamber and including window to direct **light** from **emitters** to photosensors.
DC P82 S06
PA (EAST) KODAK LTD
CYC 1
PI RD 250022 A 19850210 (198511)*
PRAI RD 1985-250022 19850120
IC G03B000-01; G06K000-01
AB RD 250022 A UPAB: 19930925
The reader comprises a photo emitter and receiver element for each area of code pattern on a film cartridge. The emitter/receiver pairs are mounted on a substrate to form a hybrid circuit which pref. also includes a logic integrated circuit to process the signals into a usable form. The reader is mounted in a camera and the output from the logic integrated circuit controls functions of the camera such as exposure or film counting.

The hybrid circuit is mounted in a camera adjacent a cartridge chamber and includes a clear window comprising prisms or lenses to control the **emitted light** and the reflected light to direct **light** from the **emitters** to the code pattern areas and receive reflected light to the respective photosensitive receivers. To reduce battery drain the hybrid circuit operates intermittently, such as only when a camera shutter is released. To reduce loading on the battery, the photo-emitters is operated sequentially.
FS EPI GMPI
FA AB
MC EPI: S06-B02

L80 ANSWER 10 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1982-B9670E [08] WPIX
TI **Hybrid** thin-**film** integrated circuit mfr. - uses several **light sources** patterning photoresist layer on thin metal coated substrate.
DC P84 U11 U14 V04
PA (NIDE) NIPPON ELECTRIC CO
CYC 1
PI JP 57005390 A 19820112 (198208)* 6
PRAI JP 1980-80036 19800613
IC G03F007-20; H01L021-30; H05K003-00
FS EPI GMPI
FA NOAB

L80 ANSWER 11 OF 12 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1977-E4208Y [21] WPIX
TI Optical microcircuit printing process - is for exposing to ultra-violet light semiconductor or **coated hybrid** substrate.
DC P82
PA (TAMA-N) TAMARACK SCI CO INC
CYC 1
PI US 4023904 A 19770517 (197721)*
PRAI US 1974-484564 19740701; US 1976-648370 19760112
IC G03B027-02
AB US 4023904 A UPAB: 19930901
The process is for exposing to ultraviolet light a semiconductor or

hybrid substrate **coated** with photo-resist, in back of a mask having bars and very narrow slits, the diffraction patterns ordinarily experienced at the substrate being virtually eliminated through use, between the **light source** and the mask, of a light integrator comprised of two successive matrixes of very small lenses or lenticules.

The lenticules form a large number of magnified, superimposed, slightly displaced images of the **light source** in the plane of the substrate; and when the slitted mask is interposed, this light forms a large number of diffraction patterns on the substrate which, because of their large number, superimposition, and slight displacement, results in extreme uniformity of light intensity and sharp resolution throughout the pattern of light on the substrate.

FS GMPI
FA AB

=> file japio
FILE 'JAPIO' ENTERED AT 09:16:24 ON 12 AUG 2004
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FILE LAST UPDATED: 2 AUG 2004 <20040802/UP>
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<<< GRAPHIC IMAGES AVAILABLE >>>

=> d L58 1-10 ti

L58 ANSWER 1 OF 10 JAPIO (C) 2004 JPO on STN
TI ORGANIC-INORGANIC POLYMER **HYBRID FILM,** TRANSPARENT ELECTRIC CONDUCTIVE FILM CONSISTING OF ORGANIC-INORGANIC POLYMER **HYBRID FILM,** LIQUID CRYSTAL DISPLAY, ORGANIC **EL** DISPLAY AND TOUCH PANEL

L58 ANSWER 2 OF 10 JAPIO (C) 2004 JPO on STN
TI MELTING PROCESSING AT LOW TEMPERATURE OF ORGANIC/ INORGANIC **HYBRID FILM**

L58 ANSWER 3 OF 10 JAPIO (C) 2004 JPO on STN
TI CIRCUIT BOARD FILM AND METHOD OF ITS MANUFACTURE

L58 ANSWER 4 OF 10 JAPIO (C) 2004 JPO on STN
TI MANUFACTURE OF MASKING MEMBRANE MATERIAL FOR X-RAY LITHOGRAPHY

L58 ANSWER 5 OF 10 JAPIO (C) 2004 JPO on STN
TI **ELECTROLUMINESCENT** ELEMENT

L58 ANSWER 6 OF 10 JAPIO (C) 2004 JPO on STN
TI COLOR CHANGING HYBRID VESICLE CONTENT HAVING PHOTORESPONSIVE FILM AND OPTICAL CONTROL METHOD FOR COLOR CHANGE THEREOF

L58 ANSWER 7 OF 10 JAPIO (C) 2004 JPO on STN
TI DOUBLE TUBE TYPE METAL HALIDE DISCHARGE LAMP FOR ILLUMINATION USE

L58 ANSWER 8 OF 10 JAPIO (C) 2004 JPO on STN
TI **ELECTROLUMINESCENCE** ELEMENT

L58 ANSWER 9 OF 10 JAPIO (C) 2004 JPO on STN

TI **LIGHT EMITTING** DIODE

L58 ANSWER 10 OF 10 JAPIO (C) 2004 JPO on STN
TI SEMICONDUCTOR **LIGHT EMITTING** DEVICE

=> => d L83 ibib abs ind

L83 ANSWER 1 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 2004-075951 JAPIO
TITLE: ORGANIC-INORGANIC POLYMER **HYBRID FILM**, TRANSPARENT ELECTRIC CONDUCTIVE FILM CONSISTING OF ORGANIC-INORGANIC POLYMER **HYBRID FILM**, LIQUID CRYSTAL DISPLAY, ORGANIC **EL** DISPLAY AND TOUCH PANEL
INVENTOR: OKUBO YASUSHI; TAKAGI TAKAHIRO; KURACHI IKUO
PATENT ASSIGNEE(S): KONICA MINOLTA HOLDINGS INC
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2004075951	A	20040311	Heisei	C08L001-14

APPLICATION INFORMATION
STN FORMAT: JP 2002-241869 20020822
ORIGINAL: JP2002241869 Heisei
PRIORITY APPLN. INFO.: JP 2002-241869 20020822
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2004
AN 2004-075951 JAPIO
AB PROBLEM TO BE SOLVED: To provide a flexible substrate film having a high transparency and heat resistance, and less birefringence, and useful for a liquid crystal display, an organic **EL** display or a touch panel.
SOLUTION: This organic-inorganic polymer **hybrid film** consisting of a cellulose ester and a hydrolytic polycondensate of a reactive metal compound capable of performing the hydrolytic polycondensation is characterized by having 0.1-40 mass % mass of the film based on the total mass of the organic-inorganic polymer **hybrid film**-supporting material on assuming that the hydrolytic polycondensation reaction of the reactive metal compound is completed as shown in formula (1) shown below. Formula (1):
A<SB>p</SB>M<SB>q</SB>B<SB>r</SB> → A<SB>p</SB>M<SB>q</SB>O<SB>r/2</SB>.

IC ICM C08L001-14
ICS B32B007-02; B32B009-00; B32B023-20; C08J005-18; C08L083-04; C08L085-00; G02B001-10
ICA H01B005-14; H01H001-02

=> d L83 2-10 ibib abs ind

L83 ANSWER 2 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 2003-309308 JAPIO
TITLE: MELTING PROCESSING AT LOW TEMPERATURE OF ORGANIC/ INORGANIC **HYBRID FILM**
INVENTOR: DEHAVEN PATRICK W; MEDEIROS DAVID R; MITZI DAVID B
PATENT ASSIGNEE(S): INTERNATL BUSINESS MACH CORP <IBM>

PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2003309308	A	20031031	Heisei	H01L051-00

APPLICATION INFORMATION
STN FORMAT: JP 2003-62285 20030307
ORIGINAL: JP2003062285 Heisei
PRIORITY APPLN. INFO.: US 2002-94351 20020308
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2003

AN 2003-309308 JAPIO

AB PROBLEM TO BE SOLVED: To provide an inexpensive organic/inorganic hybrid material for melting processing which can be used for various use, including a **light emission** layer and a charge transfer layer of a flat panel display, a non-linear light/ photoconductive device, a chemical sensor, and an organic/inorganic **light emitting** diode, and a channel layer of an organic/inorganic thin film transistor and an organic/inorganic field-effect transistor.
SOLUTION: The method, which is for manufacturing the organic/inorganic hybrid material for melting processing and which contains a step for maintaining the solid organic/inorganic hybrid material, at a temperature higher than the melting point of the organic/inorganic hybrid material but lower than its decomposition temperature, for a period of time sufficient to form a uniformly melt article and the step after that which cools down the uniformly melt article at ambient temperature, with sufficient conditions to generate the organic/ inorganic hybrid material for melting processing, is provided.
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IC ICM H01L051-00
ICS H01L021-336; H01L029-78; H01L029-786

L83 ANSWER 3 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 2002-194228 JAPIO
TITLE: CIRCUIT BOARD FILM AND METHOD OF ITS MANUFACTURE
INVENTOR: YAMADA TAKETOSHI; KITA HIROSHI; SAITO KOICHI; OKUBO YASUSHI
PATENT ASSIGNEE(S): KONICA CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2002194228	A	20020710	Heisei	C08L101-00

APPLICATION INFORMATION
STN FORMAT: JP 2000-392502 20001225
ORIGINAL: JP2000392502 Heisei
PRIORITY APPLN. INFO.: JP 2000-392502 20001225
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2002

AN 2002-194228 JAPIO

AB PROBLEM TO BE SOLVED: To provide a circuit board film for an electron display element, electron optical element, touch panel, or solar cell, having high transparency and small moisture permeability, especially, a circuit board film for an electron display element suitable for an organic **EL** element, a liquid crystalline panel, etc.
SOLUTION: This circuit board film for an electron display element,

electron optical element, touch panel, or solar cell is an organic/inorganic polymer **hybrid film** mainly containing an organic polymer having a solubility at 25°C to 100 g water of mot less than 0 g but not higher than 5 g, and that to 100 g acetone of not less than 25 g but not higher than 100 g, and a reactive metal compound capable of hydrolysis polycondensation or its hydrolysis polycondensate.

IC ICM C08L101-00
ICS C08J005-18; G09F009-30; H01L031-04; H05B033-02; H05B033-14

L83 ANSWER 4 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1994-140157 JAPIO
TITLE: **ELECTROLUMINESCENT** ELEMENT
INVENTOR: ANZAKI TOSHIAKI; YOSHII TETSURO; AOKI YUICHI
PATENT ASSIGNEE(S): NIPPON SHEET GLASS CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 06140157	A	19940520	Heisei	H05B033-22

APPLICATION INFORMATION
STN FORMAT: JP 1992-291814 19921029
ORIGINAL: JP04291814 Heisei
PRIORITY APPLN. INFO.: JP 1992-291814 19921029
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1994

AN 1994-140157 JAPIO

AB PURPOSE: To enhance **light emitting** efficiency and solve printing failure by setting a current dispersing layer to a layer having a predetermined continuity threshold voltage and ohmic resistance characteristic, and using a conductive fine powder having low temperature dependency of resistivity as a current limiting layer.
CONSTITUTION: On a transparent glass base 7, a transparent **electrode** 1, a **light emitting** layer 2, an electron barrier layer 3, a current dispersing layer 4, a current limiting layer 5 having a conductive fine powder dispersed and fixed by an organic resin, and a back plate 6 are successively laminated. The current dispersing layer 4 is set to a layer having continuity threshold voltage less than 10V and ohmic resistance characteristic. As the conductive fine powder, fine powder of a semiconductor or metal having a resistivity of 3×10<SP>3</SP>-1×10<SP>6</SP>Ωcm and the temperature dependency of the resistivity of -0.5%/K or layer is used. According to this constitution, a DC-drivable thin **film**-powder **hybrid electroluminescent** element which has both high **light emitting** efficiency necessary for a display device for character and pattern and the characteristic of never causing a character residual printing at the time of stopping the **light emission** of the element can be provided.

IC ICM H05B033-22
ICS H05B033-26

L83 ANSWER 5 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1993-158010 JAPIO
TITLE: COLOR CHANGING HYBRID VESICLE CONTENT HAVING PHOTORESPONSIVE FILM AND OPTICAL CONTROL METHOD FOR

COLOR CHANGE THEREOF
INVENTOR: SHIOTANI MASAHARU
PATENT ASSIGNEE(S): CASIO COMPUT CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 05158010	A	19930625	Heisei	G02F001-13

APPLICATION INFORMATION
STN FORMAT: JP 1991-323322 19911206
ORIGINAL: JP03323322 Heisei
PRIORITY APPLN. INFO.: JP 1991-323322 19911206
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1993
AN 1993-158010 JAPIO
AB PURPOSE: To provide the color changing hybrid vesicle content which can be easily pulverized, has excellent dynamic strength and can easily and densely control the color change based on the interdiffusion of dye precursors and color developers and the optical control method for the color change thereof.
CONSTITUTION: The vesicle film Vf forming the hybrid vesicle HV is made into the film structure in which a low-molecular bimolecular film 2 is fixed and supported by a polymerized high-polymer bimolecular **film** 1. The **hybrid** vesicle content formed by dissolving the color developers 4 into a solvent 5, sealing the solvent formed into the internal phase of the vesicle and incorporating the dye precursors 6 dissolved in the solvent 5 into the external phase of the vesicle is charged into a transparent container 7. A 1st **light source** 8 and 2nd **light source** 9 which irradiate the content with 1st light R1 and 2nd light R2 respectively including specific wavelengths ν1, ν2 for isomerizing the photoisomerizing material associated into the low molecule bimolecular film 2 are disposed on the outside of the container 7.
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IC ICM G02F001-13
ICS B01J013-00; B01J013-02; C07C245-08; C09K009-02
ICA G03G009-08

L83 ANSWER 6 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1992-133256 JAPIO
TITLE: DOUBLE TUBE TYPE METAL HALIDE DISCHARGE LAMP FOR ILLUMINATION USE
INVENTOR: KASAI YOSHIHIRO; OKAMOTO TOSHIYUKI
PATENT ASSIGNEE(S): USHIO INC
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 04133256	A	19920507	Heisei	H01J061-35

APPLICATION INFORMATION
STN FORMAT: JP 1990-254231 19900926
ORIGINAL: JP02254231 Heisei
PRIORITY APPLN. INFO.: JP 1990-254231 19900926
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1992
AN 1992-133256 JAPIO

AB PURPOSE: To have **light emission** with stable color temperature by coating the surface of an outer tube with a transparent film consisting of Ti oxide and Si oxide and having a thickness over 50nm, wherein the mol ratio ranges 6:4 thru 2:8, and including a fine powder of ceramic material in this transparent film in such a way as well dispersed.
CONSTITUTION: A transparent film F consisting of Ti oxide and Si oxide is formed on the surface of an outer tube 20. This **hybrid film** F shall be in composition such that the mol ratio of Ti oxide to Si oxide ranges 6:4 thru 2:8, and ceramic material fine powder of Si oxide etc., is dispersed therein. The film F shall have a thickness over 50nm, and particle sizes of fine powder of Si oxide preferably lie between 0.1μm and several μms. The light penetrating the film F is diffused by the fine powder of ceramic material as dispersed in the film F, so that well mixed light with high uniformity is obtained. This enables relieving chromatic unevenness and illuminance unevenness in the region not irradiated with light in satisfactory performance.

IC ICM H01J061-35
ICS H01J061-34

L83 ANSWER 7 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1990-056898 JAPIO
TITLE: **ELECTROLUMINESCENCE** ELEMENT
INVENTOR: KOBAYASHI SHIRO; AOKI YUICHI; NAKANISHI KOJI; OGINO ETSUO; SHIGEOKA TOSHITAKA; ENJOJI KATSUHISA
PATENT ASSIGNEE(S): NIPPON SHEET GLASS CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 02056898	A	19900226	Heisei	H05B033-26

APPLICATION INFORMATION
STN FORMAT: JP 1988-207830 19880822
ORIGINAL: JP63207830 Showa
PRIORITY APPLN. INFO.: JP 1988-207830 19880822
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1990

AN 1990-056898 JAPIO

AB PURPOSE: To prevent the excitation breakdown of a luminous layer due to an overcurrent by improving the material of MnO<SB>2</SB> and using a current limiting layer with preferable resistivity for a hybrid type **electroluminescence EL** element.
CONSTITUTION: A transparent **electrode** 2, a luminous layer 3, a current limiting layer 4 fixed with conducting fine powder by a binder, and a back **electrode** 5 are provided on a transparent insulating base 1. A mixture of α type MnO<SB>2</SB> and γ type MnO<SB>2</SB> or δ type MnO<SB>2</SB> is used as the conducting fine powder of the current limiting layer. The resistivity of the current limiting **layer** of a **hybrid** type **EL** element can be set to the optimum value in the range of 1×10<SP>4</SP>Ω.cm-5×10<SP>5</SP>Ω.cm, the breakage of the element due to an overcurrent can be prevented, and an **EL** display with high reliability can be obtained.

IC ICM H05B033-26
ICS H05B033-22

L83 ANSWER 8 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1986-161777 JAPIO
TITLE: **LIGHT EMITTING** DIODE
INVENTOR: MITSUYU TSUNEO; YAMAZAKI OSAMU
PATENT ASSIGNEE(S): MATSUSHITA ELECTRIC IND CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 61161777	A	19860722	Showa	H01L033-00

APPLICATION INFORMATION
STN FORMAT: JP 1985-3517 19850111
ORIGINAL: JP60003517 Showa
PRIORITY APPLN. INFO.: JP 1985-3517 19850111
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1986

AN 1986-161777 JAPIO

AB PURPOSE: To obtain a highly efficient blue **light emitting** diode, by providing a mixed crystal semiconductor epitaxial layer of CdS and ZnS in composition ratio having approximately the same lattice constant as that of GaAs, on a GaAs single crystal substrate, and providing a P-N junction in said epitaxial layer.
CONSTITUTION: A mixed crystal semiconductor 2 of CdS and`ZnS is grown on a GaAs single crystal substrate 1 in composition ratio so that the lattice constant becomes equal to that of GaAs. Both the substrate 1 and the epitaxial layer 2 have the crystal structure of a zinc blende type and have the same lattice constant. Therefore, the epitaxial layer 2 can be made to be the single crystal layer. In the epitaxial layer 2, an N-type layer 21 and a P-type layer 22 are provided, and a P-N junction plane 20 is formed. **Electrode** layers 13 and 23 are provided, and a **light emitting** diode is obtained. Pure blue light at 428nm corresponding to the forbidden band of 2.9eV of the epitaxial **hybrid** semiconductor **layer** 2 can be emitted at high efficiency of about 1%.

IC ICM H01L033-00
ICS H01L021-36

L83 ANSWER 9 OF 9 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1981-046575 JAPIO
TITLE: SEMICONDUCTOR **LIGHT EMITTING** DEVICE
INVENTOR: YANO MORICHIKA; YAMAMOTO SABURO; KURATA YUKIO; MATSUI KANEKI; HAYAKAWA TOSHIRO
PATENT ASSIGNEE(S): SHARP CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 56046575	A	19810427	Showa	H01L033-00

APPLICATION INFORMATION
STN FORMAT: JP 1979-123413 19790925
ORIGINAL: JP54123413 Showa
PRIORITY APPLN. INFO.: JP 1979-123413 19790925
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1981

AN 1981-046575 JAPIO
AB PURPOSE: To improve the externally differential efficiency of a semiconductor **light emitting** device by doping P in an window layer when laminating and growing a **light emitting** layer and the window **layer** of **hybrid** crystal semiconductor made of GaAlAs on a substrate, thereby suppressing light absorption in the window layer.
CONSTITUTION: An N type Ga<SB>1-x</SB>AlAs **light emitting** layer 2 and a P type Ga<SB>1-y</SB>Al<SB>y</SB>As window layer 3 are so laminated and epitaxially grown on an N type GaAs substrate 1 while retaining x<y, an N side **electrode** 4 is formed on the back surface of the substrate 1, and a P side **electrode** 5 is formed on the layer 3. If the **light emitting** diode is thus constructed and is energized, the **light emitting** from the layer 2 under the condition of hybird crystal ratio of x<y is not absorbed in the layer 3 but can be efficiently irradiated externally, but is actually absorbed mostly, and low intensity can be obtained in **emitting** the **light**. Accordingly, small amount of N type impurity is added with P to the P type window layer 3, thereby eliminating the formation of the light absorption region having low amount of aluminum and thereby improving the efficiency of the device.

IC ICM H01L033-00
ICS H01L021-208

=> file compendex,inspec

FILE 'COMPENDEX' ENTERED AT 09:19:24 ON 12 AUG 2004

FILE 'INSPEC' ENTERED AT 09:19:24 ON 12 AUG 2004

=> d L85 1-7 all

L85 ANSWER 1 OF 7 COMPENDEX COPYRIGHT 2004 EEI on STN
AN 2004(19):6539 COMPENDEX
TI High Refractive Index **Polymer** Coatings for Optoelectronics Applications.
AU Flaim, Tony (Brewer Science, Inc., Rolla, MO 65401, United States); Wang, Yubao; Mercado, Ramil
MT Advances in Optical Thin Films.
MO SPIE; European Optical Society (EOS); Groupement des Industries Francaise d'Optique (GIFO); Societe Francaise d'Optique, (SFO)
ML St. Etienne, France
MD 30 Sep 2003-03 Oct 2003
SO Proceedings of SPIE - The International Society for Optical Engineering v 5250 2004.p 423-434
CODEN: PSISDG ISSN: 0277-786X

PY 2004
MN 62758
DT Conference Article
TC Experimental
LA English
AB The performance of many solid-state devices including emissive displays, optical sensors, integrated optical circuits, and **light-emitting** diodes can be improved by applying a transparent high refractive index coating (>= 1.65) onto the **light-emitting** or **light**-sensing portion of the device. Ideally, the coating should combine the excellent durability and easy deposition of a spin-applied **polymer** coating with the high refractive index and optical clarity of a vacuum-deposited metal **oxide** coating such as titanium dioxide or zirconium **oxide**. While some success has been achieved in combining these very dissimilar materials to form transparent **hybrid coating** systems, for example, using sol-gel or nanoparticle dispersion techniques, the resulting coating systems often require complicated manufacturing schemes and have limited storage stability and reliability. We have demonstrated two new approaches to development of high refractive index **polymer** coatings. In the first approach, an organometallic **polymer** and a conventional **organic polymer** are combined to form a compatible coating. When cured at elevated temperatures, the organometallic **polymer** decomposes to form a highly dispersed metal **oxide** phase that imparts high index properties to the final **hybrid coating**. The new coatings are transparent and have refractive indices ranging from 1.6 to as high as 1.9 depending on the metal **oxide** content. The second approach utilizes our discovery that polyimide materials possess naturally high refractive indices in comparison to most **polymer** materials. Through careful molecular design, we have developed a new class of polyimide materials having refractive indices ranging from 1.60 to 1.78 at visible wavelengths and exhibiting excellent optical clarity. The new polyimides can be spin-applied to a layer thickness of more than 10 microns in a single coating step and form thermally stable films with good mechanical strength and adhesion to device substrates. 8 Refs.
CC 741.3 Optical Devices and Systems; 813.2 Coating Materials; 741.1 Light. Optics; 815.1 Polymeric Materials; 714.2 Semiconductor Devices and Integrated Circuits; 633.1 Vacuum Applications
CT *Optical coatings; Zirconia; Glass transition; Optical data storage; Sol-gels; Deposition; Optoelectronic devices; Refractive index; **Polymers; Light emitting** diodes; **Light emission;** Optical sensors; Vacuum applications
ST Optical **polymers;** Coating storage stability

L85 ANSWER 2 OF 7 COMPENDEX COPYRIGHT 2004 EEI on STN
AN 2004(5):3271 COMPENDEX
TI Inverted hybrid **organic light-emitting** device with polyethylene dioxythiophene-polystyrene sulfonate as an **anode** buffer layer.
AU Dobbertin, T. (Institut fur Hochfrequenztechnik Technische Universitat Braunschweig, D-38106 Braunschweig, Germany); Werner, O.; Meyer, J.; Kammoun, A.; Schneider, D.; Riedl, T.; Becker, E.; Johannes, H.-H.; Kowalsky, W.
SO Applied Physics Letters v 83 n 24 Dec 15 2003 2003.p 5071-5073
CODEN: APPLAB ISSN: 0003-6951
PY 2003
DT Journal

TC Experimental
LA English
AB Inverted hybrid OLEDs exploiting thin pentacene buffer layers were fabricated to ensure nondestructive spin coating of highly conductive PEDOT:PSS **films**. As prepared **hybrid** devices exhibited significantly reduced operation voltages and superior efficiencies.(Edited abstract) 21 Refs.
CC 714.2 Semiconductor Devices and Integrated Circuits; 815.1.1 Organic Polymers; 704.1 Electric Components; 817.1 Plastics Products; 813.1 Coating Techniques; 931.3 Atomic and Molecular Physics
CT ***Light emitting** diodes; Electron transport properties; Conductive plastics; Sputter deposition; Spin coating; Encapsulation; Thin films; Polyethylenes; Polystyrenes; **Anodes**
ST **Organic light emitting** device; Polyethylene dioxythiophene-polyestyrene sulfonate; Indium tin **oxide**; Hermetic encapsulation

L85 ANSWER 3 OF 7 COMPENDEX COPYRIGHT 2004 EEI on STN
AN 2003(25):4889 COMPENDEX
TI Fine patterning of **hybrid** titania **films** by ultraviolet irradiation.
AU Segawa, Hiyoro (Department of Applied Chemistry Faculty of Engineering Oita University, Dannoharu, 870-1192, Japan); Adachi, Shinichi; Arai, Yasuhiko; Yoshida, Kazuaki
SO Journal of the American Ceramic Society v 86 n 5 May 2003 2003.p 761-764
ISSN: 0002-7820
PY 2003
DT Journal
TC Theoretical; Experimental
LA English
AB Photosensitive **hybrid** titania **films** have been prepared from titanium butoxide modified with beta-diketone and methacrylic acid. When this film is exposed to UV light, the beta-diketonato chelate from the alkoxide and beta-diketone is dissociated, and the unsaturated hydrocarbon of methacrylic acid is **polymerized**. These structural changes in the gel film have **led** to a difference between the solubility of irradiated and unirradiated parts in the film; therefore, a fine patternable **hybrid** titania **film** has been fabricated. 17 Refs.
CC 812.1 Ceramics; 804.2 Inorganic Components; 741.1 Light. Optics; 802.2 Chemical Reactions; 804.1 Organic Components; 815.2 Polymerization
CT *Titanium **oxides**; Photopolymerization; Refractive index; Chemical modification; Ketones; **Organic** acids; Dissociation; Thin films; Sol-gels; Photosensitivity; Ultraviolet radiation
ST Titania; Gel films; Titanium butoxide; Beta diketone; Methacrylic acid

L85 ANSWER 4 OF 7 COMPENDEX COPYRIGHT 2004 EEI on STN
AN 2002(51):3060 COMPENDEX
TI Cathodic **electrodeposition** of **oxide** semiconductor thin films and their application to dye-sensitized solar cells.
AU Karuppuchamy, S. (Department of Chemistry Faculty of Engineering Gifu University, Gifu 501-1193, Japan); Nonomura, K.; Yoshida, T.; Sugiura, T.; Minoura, H.
MT SSP- 2000.
ML Tokyo, Japan
MD 11 Dec 2000-13 Dec 2000
SO Solid State Ionics v 151 n 1-4 November 2002 2002.p 19-27
CODEN: SSIOD3 ISSN: 0167-2738

PY 2002
MN 60301
DT Conference Article
TC Application; Theoretical; Experimental
LA English
AB Cathodic **electrodeposition** of titanium dioxide (TiO2) and zinc **oxide** (ZnO) thin films has been studied in the aim of developing cost-effective alternative routes to the photoelectrode materials for dye-sensitized solar cells (DSCs). Preparation of porous anatase TiO 2 thin film modified by cis-dithiocyanato bis(4,4 '-dicarboxylic acid-2,2'-bipyridine)ruthenium(II) (N3) dye has been achieved by a three-step process: cathodic **electrodeposition** of a Ti hydroxide thin film from an acidic aqueous solution containing TiOSO4, H2O2 and KNO3, heat treatment of the film at 400 deg C and chemical adsorption of dyes from solution. The photocurrent action spectrum measured at the N3-modified TiO2 thin film **electrode** in contact with I-/I3- redox electrolyte solution revealed incident photon to current conversion efficiency (IPCE) of 37% in the visible range. While TiO2 needed heat treatment for crystallization, direct **electrodeposition** of crystalline ZnO was possible from an aqueous solution of Zn(NO3) 2. Addition of N3 to the deposition bath made it possible to synthesize porous ZnO/N3 **hybrid** thin **film** in one step. IPCE of 24% has been achieved for this film. A sandwich cell using the **electrodeposited** ZnO/N3 **hybrid** thin **film** photoelectrode measured I sc=0.61 mA/cm2, Voc=0.46 V, F.F.=0.46 and eta=0.13% under illumination by an artificial **light source** (500-W Xe lamp equipped with a <420-nm and an IR cutoff filters, intensity=100 mW cm-2), being the first example of a real working DSC fabricated without any heat treatment. $CPY 2002 Elsevier Science B.V. All rights reserved. 33 Refs.
CC 712.1 Semiconducting Materials; 702.3 Solar Cells; 539.3.1 Electroplating; 803 Chemical Agents; 804.2 Inorganic Components; 801 Chemistry
CT *Semiconducting films; Photocurrents; Redox reactions; Crystallization; **Electrodes;** Adsorption; Heat treatment; Solar cells; **Electrodeposition;** Dyes; Titanium dioxide; Zinc **oxide;** Solutions
ST Cathodic **electrodeposition;** Dye-sensitized solar cells (DSC)
ET O*Ti; TiO; Ti cp; cp; O cp; O*Zn; ZnO; Zn cp; Cs*D*S; DSCs; D cp; S cp; Cs cp; N; Ti; O*S*Ti; TiOSO; H*O; H2O; H cp; K*N*O; KNO; K cp; N cp; I; N*O*Zn; Zn(NO; W; Xe

L85 ANSWER 5 OF 7 COMPENDEX COPYRIGHT 2004 EEI on STN
AN 1999(13):3456 COMPENDEX
TI Orange and green **electroluminescence** with hybrid **light -emitting** diodes.
AU Dantas de Morais, Tony (UMR CNRS, Palaiseau, Fr); Chaput, Frederic; Lahlil, Khalid; Boilot, Jean-Pierre
MT Proceedings of the 1998 Conference on Organic Light-Emitting Materials and Devices II.
MO SPIE
ML San Diego, CA, USA
MD 21 Jul 1998-23 Jul 1998
SO Proceedings of SPIE - The International Society for Optical Engineering 3476 1998.SPIE, Bellingham, WA, USA.p 338-348
CODEN: PSISDG ISSN: 0277-786X
PY 1998
MN 49687
DT Conference Article

TC Experimental
LA English
AB We have elaborated for the first time **organic-inorganic** hybrid **light-emitting** diodes (HLED).These devices emitting in the orange and in the green are formed of one, two or three **hybrid** thin **layers** exhibiting different functionalities and sandwiched between indium-tin **oxide** (**ITO**) and metallic **electrodes**.These layers have been prepared by the sol-gel technique from silane precursors modified with hole or electron transporting units and with **light-emitting** DCM or naphthalimide moieties.(Author abstract) 21 Refs.
CC 741.3 Optical Devices and Systems; 714.2 Semiconductor Devices and Integrated Circuits; 741.1 Light. Optics; 701.1 Electricity: Basic Concepts and Phenomena; 741 Light, Optics and Optical Devices; 804 Chemical Products Generally
CT *Luminescent devices; **Light emitting** diodes; Silanes; **Electroluminescence**; Sol-gels
ST Hybrid **light emitting** diodes (HLED).

L85 ANSWER 6 OF 7 COMPENDEX COPYRIGHT 2004 EEI on STN
AN 1994(19):1550 COMPENDEX
TI Current transport and aging in direct-current powder **electroluminescent** display devices.
AU Raposo, Joseph A. (Univ of Texas at El Paso, El Paso, TX, USA); Singh, Vijay P.; McClure, John C.; Bell, Raymond G.; Mayo, Jonathan W.
SO Journal of the Society for Information Display v 1 n 4 Dec 1993.p 397-403
CODEN: JSIDE8 ISSN: 0734-1768
PY 1993
DT Journal
TC Experimental
LA English
AB Direct-current powder **electroluminescent** (DCPEL) display devices were excited by unipolar voltage pulses, and current flow through the phosphor was recorded.Devices with different formed layer thicknesses were obtained by varying the forming voltage.For a fixed electric field in the formed layer, the phosphor current did not show a substantial increase as the thickness of the formed layer increased.A model is proposed in which tunnel injection from the p-Cu2S/i-ZnS:Mn interface of a reverse-biased p-Cu2S/i-ZnS:Mn/n-SnO2 structure is thought to be the controlling current mechanism.Aging studies revealed that further forming is the dominant degradation mechanism in the early stages, while load-line degradation and softening become the dominant degradation modes as the aging process is continued.The conventional DCPEL device structure was modified by introducing a thin chromium layer just prior to the deposition of the aluminum back **electrode**.Incorporating chromium reduced the initial series resistance of the device.A hybrid device employing a thin film (1 mu m) of ZnS:Mn, sandwiched between two thin dielectric layers (5 nm), was fabricated; ZnS:Mn,Cu powder was sprayed onto the thin-**film** sandwich.The **hybrid** structure showed good luminance without forming; however, device degradation with time was still present.(Author abstract) 22 Refs.
CC 741.3 Optical Devices and Systems; 804.2 Inorganic Components; 931.2 Physical Properties of Gases, Liquids and Solids; 701.1 Electricity: Basic Concepts and Phenomena; 921.6 Numerical Methods; 801.4 Physical Chemistry
CT *Luminescent devices; Structure (composition); Phosphors; Aging of materials; Electric fields; Zinc sulfide; Mathematical models; Interfaces (materials); Display devices; **Electroluminescence**
ST Direct current powder **electroluminescent** devices; Unipolar

voltage pulse; Layer thickness; Tunnel injection; Thin chromium layer; Hybrid devices; Current transport; Aluminum back **electrode**
ET Cu*S; Cu2S; Cu cp; cp; S cp; Mn*S*Zn; Mn sy 3; sy 3; S sy 3; Zn sy 3; ZnS:Mn; Mn doping; doped materials; Zn cp; O*Sn; SnO2; Sn cp; O cp; Cu

L85 ANSWER 7 OF 7 COMPENDEX COPYRIGHT 2004 EEI on STN
AN 1983(10):144918 COMPENDEX DN *8347753; 831085176
TI MAGNETRON DEPOSITION OF CONDUCTOR METALLIZATION.
AU Class, Walter H. (Materials Research Corp, Orangeburg, NY, USA)
SO Solid State Technol v 26 n 6 Jun 1983 p 103-106
CODEN: SSTEAP ISSN: 0038-111X
PY 1983
LA English
AB The development of magnetron sputtering techniques has **led** to increasing interest in the use of all-sputtered thick metal films for thin-**film hybrid** and silicon integrated circuits.These applications usually involve the metals aluminum, copper and gold.The use of all-sputtered films gives rise to problems of productivity and of substrate heating.Author examines the economics of sputtering thick metal films for three magnetron **cathode** types: planar magnetron, Inset magnetron and a newly developed Focest magnetron source.5 refs.
CC 714 Electronic Components; 713 Electronic Circuits; 531 Metallurgy & Metallography
CT *INTEGRATED CIRCUITS, THICK FILM; METALS AND ALLOYS:Sputtering
ST MAGNETRON **CATHODE** TYPES

=> d L87 1-4 all

L87 ANSWER 1 OF 4 INSPEC (C) 2004 IEE on STN
AN 2004:8018000 INSPEC DN A2004-16-8250-008
TI Preparation of photo-induced refractive index pattern using polysilane-silica **hybrid** thin **films**.
AU Matsukawa, K. (Osaka Municipal Tech. Res. Inst., Joto, Japan); Katada, K.; Nishioka, N.; Matsuura, Y.; Inoue, H.
SO Journal of Photopolymer Science and Technology (2004) vol.17, no.1, p.51-2. 10 refs.
Published by: Tech. Assoc. Photopolymers
CODEN: JSTEEW ISSN: 0914-9244
SICI: 0914-9244(2004)17:1L.51:PPIR;1-L
DT Journal
TC Practical; Experimental
CY Japan
LA English
AB Polysilanes are photo-functional **polymers** with sigma -conjugation along the Si backbone and carbon-based side groups, which have many attractive properties such as photo-electron conductivity, **electro**- or photo-**luminescence**, etc. Particularly, the photodecomposition of polysilanes provide the large refractive index change from the unexposed area. This is an important candidate material for some optical devices. Tsushima et al. have reported the fabrication of optical waveguide using polysilanes with their photobreaching properties. We have been studying about the **organic-inorganic** hybrid materials dispersing polysilane segments in **inorganic oxides**. The polysilane-silica **hybrid** thin **films** were prepared from polysilane-acrylic or -methacrylic block copolymers with alkoxysilyl or amide groups via sol-gel reaction using alkoxysilanes. Their refractive indices were also widely changed by the photobreaching

process of polysilane segments under UV light irradiation. In this work, the fixation of refractive index change on polysilane-silica **hybrid** thin **films** was investigated.

CC A8250 Photochemistry and radiation chemistry; A7820D Optical constants and parameters (condensed matter); A8120S Preparation of polymers and plastics; A6855 Thin film growth, structure, and epitaxy

CT OPTICAL SATURABLE ABSORPTION; **ORGANIC-INORGANIC** HYBRID MATERIALS; PHOTODISSOCIATION; REFRACTIVE INDEX; SILICON COMPOUNDS; SOL-GEL PROCESSING; THIN FILMS; ULTRAVIOLET RADIATION EFFECTS

ST photoinduced refractive index pattern; **polysilane-silica hybrid thin films; photofunctional polymers**; sigma -conjugation; Si backbone; carbon-based side groups; photoelectron conductivity; **electroluminescence**; photoluminescence; polysilane photodecomposition; optical device materials; optical waveguide; photobreaching properties; **organic-inorganic hybrid materials; inorganic oxides**; polysilane-acrylic block copolymers; polysilane-methacrylic block copolymers; alkoxysilyl groups; amide groups; sol-gel reaction; alkoxysilanes; UV light irradiation; Si

CHI Si el

ET Si

L87 ANSWER 2 OF 4 INSPEC (C) 2004 IEE on STN

AN 2003:7551212 INSPEC DN A2003-08-7855-009; B2003-04-4220M-013

TI Photoluminescent and **electroluminescent** properties of Mn-doped ZnS nanocrystals.

AU Heesun Yang; Holloway, P.H. (Dept. of Mater. Sci. & Eng., Univ. of Florida, Gainesville, FL, USA); Ratna, B.B.

SO Journal of Applied Physics (1 Jan. 2003) vol.93, no.1, p.586-92. 25 refs.
Doc. No.: S0021-8979(03)01103-4
Published by: AIP
Price: CCCC 0021-8979/2003/93(1)/586(7)/$19.00
CODEN: JAPIAU ISSN: 0021-8979
SICI: 0021-8979(20030101)93:1L.586:PEPD;1-P

DT Journal

TC Experimental

CY United States

LA English

AB ZnS:Mn nanocrystals with sizes between 3 and 4 nm were synthesized via a competitive reaction chemistry method, where the surface capping **organic** species (p-thiocresol) is used as an inhibitor of the crystal growth. The x-ray diffraction and photoluminescent (PL) properties of ZnS:Mn bulk and nanocrystals were compared. A direct current **electroluminescent** (**EL**) device having a **hybrid organic/inorganic multilayer** structure, indium tin **oxide**/poly(3,4-ethylenedioxythiophene)/poly(styrenesulfonate) (PEDOT-PSS)/PVK/ZnS:Mn NC/Al, was tested. In this multilayer **EL** device structure, the PEDOT-PSS leads to enhanced hole injection, while the poly(N-vinylcarbazole) (PVK) serves as a passivation layer between the PEDOT-PSS and nanocrystal layers. Electron-hole recombination was not confined to the ZnS:Mn nanocrystal layer, but also occurred in the PVK layer. The result was emission from both the blue-emitting PVK and yellow-emitting ZnS:Mn nanocrystals. The **EL** emission spectrum was dependent upon the voltage, showing an increasing ratio of PVK emission to nanocrystal emission with increased voltage. The dependence of PL and **EL** emissions on Mn concentration (0.40 to 2.14 mol %) is also reported.

CC A7855E Photoluminescence in II-VI and III-V semiconductors; A7860F Electroluminescence (condensed matter); A6146 Structure of solid clusters,

nanoparticles, and nanostructured materials; B4220M Phosphors; B4260 Electroluminescent devices
CT **ELECTROLUMINESCENCE; ELECTROLUMINESCENT** DEVICES; II-VI SEMICONDUCTORS; MANGANESE; NANOSTRUCTURED MATERIALS; PHOSPHORS; PHOTOLUMINESCENCE; X-RAY DIFFRACTION; ZINC COMPOUNDS
ST photoluminescent properties; **electroluminescent properties;** Mn-doped ZnS nanocrystal; competitive reaction chemistry; **surface capping organic species;** p-thiocresol; crystal growth inhibitor; X-ray diffraction; **DC electroluminescent device; hybrid organic/inorganic multilayer structure; ITO/PEDOT-PSS/PVK/ZnS:Mn/Al;** hole injection; passivation layer; electron-hole recombination; ZnS:Mn
CHI ZnS:Mn ss, Mn ss, Zn ss, S ss, ZnS bin, Zn bin, S bin, Mn el, Mn dop
ET Mn; S*Zn; ZnS; Zn cp; cp; S cp; Mn*S*Zn; Mn sy 3; sy 3; S sy 3; Zn sy 3; ZnS:Mn; Mn doping; doped materials; N; Zn; S

L87 ANSWER 3 OF 4 INSPEC (C) 2004 IEE on STN
AN 1987:2948184 INSPEC DN B87056726
TI Scope layout increases circuit density.
AU Bilterijst, J.; van Gorsel, J. (Philips Test & Meas., Enschede, Netherlands)
SO Electronic Packaging and Production (Feb. 1987) vol.27, no.2, p.116-17. 0 refs.
CODEN: ELPPA5 ISSN: 0013-4945
DT Journal
TC Application; Practical; Product Review
CY United States
LA English
AB In Philips' latest PM 3295 compact VHF oscilloscope, the need to reduce circuit size, yet handle frequencies up to 350 MHz, required a multilevel approach to circuit integration and interconnection. Maximum packaging density and reliable electrical performance was achieved by use of thin-**film hybrids** and surface-mounted discrete chip components. The PM 3295 is a dual-timebase instrument offering high 4-ns writing speed on a traveling wave mode CRT, manual or remote control, and simple operation. An autoset facility, effectively an intelligent beam finder, can set up all instrument controls in manual operation to provide a meaningful display. A combination of on-screen cursors and digital display, **LEDs,** LCDs and 'buffered' switches provides a new approach to measurement. Microprocessor control of all front-panel switches enables a maximum of information to be provided to the user.
CC B0170J Product packaging; B2210 Printed circuits; B2220J Hybrid integrated circuits; B7210B Automatic test and measurement systems; B7250G Display, recording and indicating instruments
CT **CATHODE**-RAY OSCILLOSCOPES; COMPUTERISED INSTRUMENTATION; HYBRID INTEGRATED CIRCUITS; PACKAGING; SURFACE MOUNT TECHNOLOGY
ST SMT; Philips; CRO; microprocessor control; circuit density; VHF oscilloscope; packaging density; reliable electrical performance; **thin-film hybrids;** surface-mounted discrete chip components; PM 3295; dual-timebase instrument; 4-ns writing speed; traveling wave mode CRT; remote control; autoset facility; intelligent beam finder; manual operation; on-screen cursors; digital display; 350 MHz
PHP frequency 3.5E+08 Hz
ET In

L87 ANSWER 4 OF 4 INSPEC (C) 2004 IEE on STN
AN 1984:2212084 INSPEC DN A84035359
TI Dielectric analysis and measurements of thermally evaporated erbium

fluoride thin films.
AU Ramanujam, R.; Radhakrishnan, M.; Balasubramanian, C. (Dept. of Phys., Bharathiar Univ., Coimbatore, India)
SO Annual Report. IEEE 1983 Conference on Electrical Insulation and Dielectric Phenomena
New York, NY, USA: IEEE, Nov. 1983. p.325-30 of xv+538 pp. 7 refs.
Conference: Buck Hill Falls, PA, USA, 16-20 Oct 1983
Sponsor(s): IEEE
DT Conference Article
TC Experimental
CY United States
LA English
AB Very high precision capacitors with good stability are required for the fabrication of thin **film hybrid** integrated circuits.
Materials that warrant such attention include rare earth fluorides and **oxides** owing to their mechanical and chemical stability. Erbium fluoride films have been studied with regard to its **electroluminescence** only. This paper reports an investigation on the dielectric analysis and measurements of thermally evaporated erbium fluoride thin films.
CC A7720 Permittivity; A7740 Dielectric loss and relaxation; A7755 Dielectric thin films
CT DIELECTRIC LOSSES; DIELECTRIC THIN FILMS; ERBIUM COMPOUNDS; INSULATING THIN FILMS; PERMITTIVITY
ST high precision capacitors; **thin film hybrid integrated circuits**; chemical stability; **electroluminescence**; dielectric analysis; ErF3; permittivity; dielectric losses
ET Er*F; ErF3; Er cp; cp; F cp